OnSSI

Intelligent IP Video Surveillance

NetDVR Rev 6.0

NVR & Camera Management Platform

Installation and User Manual

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Introductions

NetDVR is:

- *Compatible* with a wide range of different IP video products from the leading manufacturers, so you choose the hardware you want—in combinations too
- *Dependable*; with robust and stable performance proven in operation on thousands of cameras worldwide
- *Flexible*; with remote access features that let you use the surveillance system from any place and at any time
- *Scalable*; with open architecture based on IP technology with ongoing development and regular updates, which gives you long-term returns on your surveillance investment
- *Future-safe*; the IP network approach is the foundation for tomorrow—available today

Included Components

NetDVR consists of a number of components, each targeted at specific tasks and user types:

- The *Administrator*: The main application used by surveillance system administrators for configuring the NetDVR surveillance system server, upon installation or whenever configuration adjustments are required, e.g. when adding new cameras or users to the system.
- The *Recording Server*: A vital part of the surveillance system; recordings are only transferred to NetDVR while the recording server is running. The recording server may be installed in two ways: Either as an *application* (the *Monitor* application) or as a *service* (the *Recording Server* service), See Installing the Software for more information about the installation differences.
- The *Image Server*: Handles access to the surveillance system for remote users logging in with the *NetGuard*, *NetGuard EVS*, or *NetPDA/NetCell Client*. The *Image Server* itself does not require separate hardware; it runs as a service on the surveillance system server. Surveillance system administrators handle *Image Server* configuration, including remote users' access rights, through the *Image Server Administrator* application.
- The *NetGuard* and *NetGuard EVS*: Choice of two types of remote access clients, each providing users with intuitive remote access to the surveillance system. The *NetGuard* and *NetGuard EVS* let users view live images, play back recorded images, activate outputs, print and export evidence, etc. The *NetGuard* lets users view live images, play back recorded images, activate outputs, print and export evidence, etc. The *NetGuard* can be downloaded from the surveillance system server and installed locally on remote users' PCs, or the users can access it straight from the surveillance system server through an Internet Explorer browser. The extra feature-rich *NetGuard EVS* should always be downloaded and installed on remote users' PCs.
- The *Web Server* and *Realtime Feed Server*: Simple alternatives to the *Image Server*/*NetGuard*/*NetGuard EVS* for providing remote access to the surveillance system, the *Web Server* and *Realtime Feed Server* let system administrators manage remote access. Remote users access the *Web Server* and *Realtime Feed Server* through an Internet Explorer browser.
- The *NetPDA/NetCell Client* and *NetPDA/NetCell Server*: Enable remote access to the NetDVR surveillance system via a PDA (Personal Digital Assistant; a hand-held computer device) with a wireless connection.
- *NetMatrix*: Integrated product, enabling control of live camera views on remote computers for distributed viewing. Once configured, NetMatrix-triggered live video can be viewed NetGuard EVS or on computers with the *NetMatrix Monitor* client application installed.

Updates

OnSSI regularly releases service updates for its products, offering improved functionality and support for new devices. If you are an OnSSI system administrator, it is recommended that you check the OnSSI website www.OnSSI.com for updates at regular intervals in order to make sure you are using the most recent version of OnSSI.

Software Upgrade Plan (SUP)

As the cornerstone of its support to customers, OnSSI offers a Software Upgrade Plan (SUP). The purpose of the SUP is to provide you with lower cost alternative to standard Software upgrades. SUP coverage can easily be purchased together with most new OnSSI products, but cannot be purchased as an addon to a previously purchased product. During the period covered by the SUP, customers are entitled to receive all generally-released new versions of their OnSSI software, including both interim and major releases, changes, service packs and any patches for the product. Having a valid SUP may easily lead to measurable savings for your organization: The standard cost of a product upgrade (for example from version X.1 to X.2) is normally 35% of the full product's recommended retail price for a single upgrade; depending on the product, the whole SUP cost per year is much lower then the above single software upgrade, and you will be entitle to receive as many upgraded released in the covered period.

Legal Notice

The following product manual is intended for general information purposes only, and due care has been taken in its preparation.

Any risk arising from the use of this information rests with the recipient, and nothing herein should be construed as constituting any kind of warranty.

OnSSI reserves the right to make adjustments without prior notification.

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System Requirements

The following are *minimum* system requirements for running NetDVR and associated applications:

- ## Surveillance System Server

Operating System	Microsoft Windows 2000 Professional, Windows 2000 Server and Advanced Server, Windows XP Professional (32 and 64 bit) or Windows Server 2003 (32 and 64 bit)
CPU	Intel P4 or higher (Xeon recommended), minimum 2.4 GHz.
RAM	Minimum 1 GB.
Network	Ethernet, 1 Gbit recommended.
Graphics Adapter	AGP or PCI-Express, minimum 1024×768, 16 bit colors.
Hard Disk Type	E-IDE, PATA, SATA, SCSI, SAS (7200 rpm or faster).
Hard Disk Space	80 GB free (depends on number of cameras and recording settings)
Software	DirectX 9.0 or newer required to run the live view *Monitor* application. To run the NetPDA/NetCell Server, the following is required: Internet Information Services (IIS) 5.0 or later as well as Microsoft .Net Framework 1.1.

Tip: To check which DirectX version is installed on a computer, click *Start*, select *Run...*, and type `dxdiag`. When you click *OK*, the *DirectX Diagnostic Tool* window will open; version information is displayed near the bottom of its *System* tab. Should the server require a DirectX update, the latest versions of DirectX are available from http://www.microsoft.com/downloads/

Tip: Information about how to verify/install Microsoft .Net Framework and IIS versions is available in Installing & Configuring the NetPDA/NetCell Server.

- NetGuard EVS
- NetGuard
- ## NetPDA/NetCell Server

  The *NetPDA/NetCell Server* is typically installed on the surveillance system server; see the system requirements for the surveillance system server.

  Note, however, that to run the *NetPDA/NetCell Server* the following is also required on the surveillance system server:

  - Internet Information Services (IIS) 5.0 or later
  - Microsoft .Net Framework 1.1.

  Note that later versions of. Net Framework may also be present on the server. If .Net Framework 1.1 *as well as* one or more later versions are present on the server, Windows' default settings may cause a later .Net Framework version to be used instead of .Net Framework 1.1. To verify/change which .Net Framework version is used, do the following:

  1. Click *Start* and select *Control Panel*.

2. Click *Administrative Tools*.

3. Click *Internet Information Services*.

4. In the *Internet Information Services* window's left pane, locate and right-click the *Default Web Site* item:

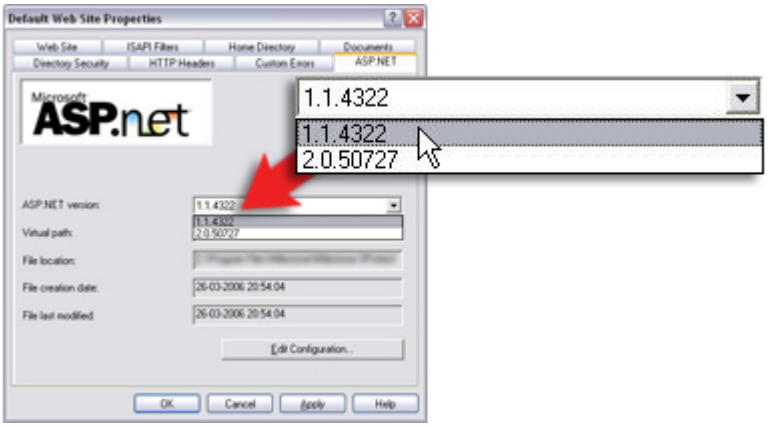
Example only; content on your server may be different

5. In the resulting menu, select *Properties*. This will open the *Default Web Site Properties* dialog.

6. Select the dialog's *ASP.NET* tab.

   The .Net Framework in use will be indicated in the *ASP.NET version* field.

7. If required, change the *ASP.NET version* to *1.1.4322*:



Example only.

8. Click *OK*.

9. Close the *Internet Information Services* and *Administrative Tools* windows if still open.

- **NetPDA Client**

Operating System	Microsoft Windows Pocket PC 2003/2003 SE/Mobile 5.0.
CPU	Intel StrongARM or 100% compatible.
RAM	Minimum 32 MB.
Network	Ethernet, 256 Kbit or higher recommended.
Graphics Adapter	Minimum 320×200, 16 bit colors.

- **NetMatrix Monitor**

Operating System	Microsoft Windows 2000 Professional, Windows 2000 Server and Advanced Server, Windows XP Professional (32 and 64 bit) or Windows Server 2003 (32 and 64 bit)
CPU	Intel P3 or higher, minimum 1.0 GHz.
RAM	Minimum 256 MB.
Network	Ethernet, 100 Mbit or higher recommended.
Graphics Adapter	AGP or PCI-Express, minimum 1024×768, 16 bit colors.
Hard Disk Space	50 MB free.

Administrator Application

For users without administrator rights, access to certain features in NetDVR may in some organizations have been restricted.

When this is the case, you will be asked to specify the administrator password in the *Administrator Login* window in order to get access to the restricted features.

The *Administrator Login* window

You will only be asked to specify the administrator password in three situations:

- When you open the *Administrator* application, by selecting it from Windows' *Start* menu or by clicking the *Administrator* shortcut on the desktop. This will only be the case when access to the *Administrator* application has been password-protected.
- When you click the *Admin Login* button to access the *Administrator* from the *Monitor* application.
- When access to particular features, such as control of PTZ (Pan/Tilt/Zoom) cameras in the *Monitor* application, has been restricted to administrators only.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Administrator* window, the main window in the *Administrator* application, is used by the surveillance system administrator for configuring NetDVR upon installation or whenever configuration adjustments are required, e.g. when adding new cameras to the system.

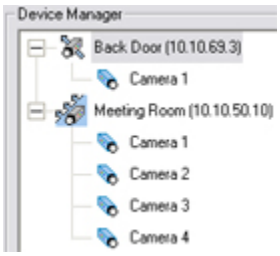
Access: You access the *Administrator* application by selecting it from Window's *Start* menu or by clicking the *Administrator* shortcut on the desktop. If the *Monitor* application is installed, and access from the *Monitor* application is enabled, the *Administrator* application may also be accessed from the *Monitor* application. Access to the *Administrator* application may be password protected, in which case you will be asked to provide the administrator password in the *Administrator Login* window.

Administrator desktop shortcut

The *Administrator* window features a *Device Manager* section as well as a number of buttons providing access to configuration:

- ### Device Manager Section

  The *Device Manager* section—located in the middle of the *Administrator* window—lists all added devices and attached cameras. The *Device Manager* section thus provides you with an overview of your surveillance system.



Detail from the *Administrator* window's *Device Manager* section—two devices have been added; the first device has a single camera attached, whereas the second device has four cameras attached

Until you have added devices, the *Device Manager* section will be empty.

Adding Devices

You add devices through an intuitive *Device Setup Wizard*, available by clicking the *Administrator* window's *Add Device* button (see also How to Add a Device).

When devices have been added, they will be listed in the *Device Manager* section. Clicking the plus sign ⊞ next to a device in the *Device Manager* section will list cameras attached to the device.

Editing Settings for Devices

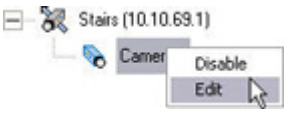
To edit settings for a device listed in the *Device Manager* section, select the device, then click the *Edit device...* button to open the *Edit device settings* window.

Editing Settings for Cameras

To edit the settings for a camera listed in the *Device Manager* section, click the plus sign ⊞ next to the device to which the camera is attached, select the required camera, then click the *Settings* button to open the *Camera Settings for [Device name] [Camera Name]* window.

Renaming a Camera

To rename a camera, right-click the camera name in question, then select *Edit* from the menu that appears:



This will open the *Camera Name and Number* window, in which you are able to overwrite the existing camera name with a new one.

Assigning Shortcut Numbers to Cameras

Users of the *NetGuard EVS* can take advantage of a range of keyboard shortcuts, some of which let the users toggle between viewing different cameras. Such keyboard shortcuts include numbers, which are used to identify each camera. These camera shortcut numbers are specified in the *Administrator*.

To assign a shortcut number to a camera, right-click the camera name in question, then select *Edit* from the menu that appears:

This will open the *Camera Name and Number* window, in which you are able to specify a shortcut number to be used with the camera.

Note: Camera shortcut numbers are only used in the *NetGuard EVS*. In other applications, such as the *Monitor* or the *NetGuard*, the camera shortcuts cannot be used.

Tip: More information about using keyboard shortcuts in the *NetGuard EVS* is available in Using Standard Keyboard Shortcuts.

Editing Settings for Audio Sources

To edit the settings for an audio source listed in the *Device Manager* section, click the plus sign ⊞ next to the device to which the audio source is attached, select the required audio source, then click the *Settings* button to open the *Audio Device Settings* window.

IMPORTANT: The use of audio sources will impact the database capacity for storing video; see Important Information about Using Audio for more information.

Disabling/Enabling Cameras and Audio Sources

Individual cameras and audio sources listed in the *Device Manager* section are by default enabled, meaning that video from cameras and audio from attached microphones is by default transferred to NetDVR—provided that the cameras are marked as *online* in the *Camera/Alert Scheduler* Window (also default).

IMPORTANT: The use of audio sources will impact the database capacity for storing video; see Important Information about Using Audio for more information.

Note: On some devices, audio can also be enabled/disabled on the device itself, typically through the device's own configuration web page. If audio on a device does not work after enabling it in the *Administrator* application, you should thus verify whether the problem may be due to audio being disabled on the device itself.

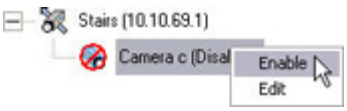
If required, you can disable individual cameras and audio sources listed in the *Device Manager* section. When a camera or audio source is disabled, no images/audio will be transferred from the camera/audio source to NetDVR.

Note: If the *Monitor* application is installed and the camera in question (including any attached microphones) is included in the *Monitor* application (configured in the *Monitor Manager* window), the camera/audio source cannot be disabled. When this is the case, remove the camera from the *Monitor Manager* window's layout before disabling the camera.

To disable a camera or audio source, right-click the required camera or audio source in the *Device Manager* section, then select *Disable*:

When a camera or audio source is disabled, it will be indicated as follows:

To enable a previously disabled camera or audio source, simply right-click the required camera or audio source in the *Device Manager* section, then select *Enable*:



Tip: Individual cameras can also be disabled/enabled in the *Camera Settings for [Device Name] [Camera Name]* Window. Individual audio sources can also be disabled/enabled in the Audio Device Settings Window.

- ### Administrator Window's Buttons

The *Administrator* window features the following buttons:

Button	Description
Monitor Manager... **- or -** **Service Manager...**	**Installation-dependent feature:** The *Monitor Manager* button is available only when the recording server has been installed as an *application* (the *Monitor* application). The *Service Manager* button is available only when the recording server has been installed as a *service* (the*Recording Server* service). See Installing the Software for more information about the installation differences. • The *Monitor Manager* button opens the *Monitor Manager* window, in which you specify which cameras should record and display images in the *Monitor application. It also lets you configure the layout of the Monitor* application. • The *Service Manager* button opens the *Service Manager* window, which lets you pause/resume the*Recording Server* service. Pausing the service is necessary in order to access some features, for example configuration of PTZ (Pan/Tilt/Zoom) cameras. **IMPORTANT:** While the service is paused, no video or audio will be recorded.
Scheduler...	Opens the *Camera/Alert Scheduler* window, in which you specify online periods for each camera. You are also able to specify if cameras should go online when specific events occur (e.g. when a door is opened), and if e-mail, SMS or sound alerts should be used if motion is detected during specific periods of time (e.g. during working hours). If using PTZ cameras with patrolling, you are furthermore able to specify if certain patrol schemes should be used during specific periods of time. **Tip:** By default, all cameras are online at all times. You will only need to modify scheduler settings if you require cameras to be online only at specific times or events, or if you want to use specific alerts or a PTZ patrol scheme.
General Settings...	Opens the *General Settings* window, in which you are able to specify a number of settings related to: • Administrator password • User rights • PTZ patrolling pause time out (if using PTZ cameras with patrolling) • Joystick setup for PTZ cameras • E-mail settings (for alerts sent via e-mail) • SMS settings (for alerts sent via SMS) • Log file settings • Event recording settings

	• Other advanced settings, such as the ability to disable screen update in order to minimize CPU usage **Installation-dependent feature:** Note that some of the settings are only available when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), some of the features are not relevant. See Installing the Software for more information about the installation differences.
Archive Setup...	Opens the *Archive setup* window, in which you specify NetDVR's archiving settings. Archiving lets you keep recordings for as long as required, limited only be the available hardware storage capacity.
Import DLKs...	Lets you import all required Device License Keys (DLKs) in one go, thus avoiding the need to specify each DLK manually when adding devices. See also *How to Import Device License Keys*.
NetMatrix...	Lets you access NetMatrix configuration. NetMatrix is an integrated product for forcing video from any camera to any monitor on a network operating with NetDVR. Not applicable.
Add Device...	Starts the *Device Setup Wizard*, which guides you through the process of adding a new device. See also *How to Add a Device*.
Edit Device...	When you have selected a device in the *Administrator* window's *Device Manager* section, clicking the *Edit Device...* button lets you edit settings for the selected device in the *Edit device settings* window.
Remove Device	Lets you remove a device selected in the *Administrator* window's *Device Manager* section. In order to prevent accidental removal of devices, you will be asked to confirm that you want to remove the device.
Settings...	Lets you specify settings for a selected camera or audio source: • *Cameras*: When you have selected a camera in the *Administrator* window's *Device Manager* section, clicking the *Settings* button will open the *Camera Settings for [Device Name] [Camera Name]...* window, in which you specify camera settings. • *Audio sources*: When you have selected an audio source in the *Administrator* window's *Device Manager* section, clicking the *Settings* button will open the *Audio Device Settings* window, in which you can enable/disable the audio source and change its name if required.
I/O Setup...	Opens the *I/O Setup* window, in which you are able to define events based on input events (for example when a door sensor detects that a door is opened) and VMD (Video Motion Detection). The *I/O Setup* window also lets you specify output (e.g. a siren). When defined, events can be used for a variety of purposes. For example, an input event can be used for triggering output, for starting a particular camera, and for triggering that an e-mail or SMS message is sent to a particular user, notifying the user of the recorded event.

	See also the description of the *I/O Control...* button.
Event Buttons...	Opens the *Event Buttons* window, in which you are able to define events for use on event buttons. Event buttons can used in the *Monitor* application and *NetGuard EVS* for manually triggering events.
Generic Events...	Opens the *Generic Events* window, in which you are able to define events based on input from external sources using the TCP and UDP protocols.
I/O Control...	Opens the *I/O Control* window, in which you are able to attach outputs to input events. This way you can, for example, define that a siren should sound when a sensor detects that a door is opened.
Exit	Closes the *Administrator* application.

Tip: Clicking the icon in the left corner of the *Administrator* window's title bar, gives you access to a small menu. Selecting *About Adm ...* from the menu will display a dialog with your system's version number and software license code; this is valuable information, should you ever need to contact product support.

Import of DLKs

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

You must have a Device License Key (DLK) for every device (IP network camera or IP video server) installed on your NetDVR surveillance system.

Remember that you are allowed to install and use only the number of cameras listed on your organization's license sheet; regardless of you number of available DLKs. For example, a fully used four-port video server counts as four cameras even though the cameras are connected through a single device—therefore a fully used four-port video server will use four licenses.

System administrators obtain DLKs as part of the software registration process.

You are able to specify each DLK manually when adding a device through the *Device Setup Wizard*, available by clicking the *Add Device...* button in the *Administrator* window. However, you can avoid having to specify each DLK manually by using the following procedure to import all received DLKs into NetDVR in one go:

Prerequisites: The DLKs, received in a .dlk file, must have been saved at a location accessible by the surveillance server, for example on a network drive or on a USB stick.

1. Open the *Administrator* window.
2. In the *Administrator* window, click the *Import DLKs...* button.
3. Browse to the location at which you have saved the received .dlk file.

   Select the file, and click *Open*.

   All DLKs are now automatically imported, and the relevant DLK will automatically appear when you add a device through the *Device Setup Wizard*.

Device Administration

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

In NetDVR you add devices (IP video camera devices or IP video server devices) rather than actual cameras. This is because devices have their own IP addresses or host names. Being IP-based, NetDVR primarily identifies units on the surveillance system based on their IP addresses or host names.

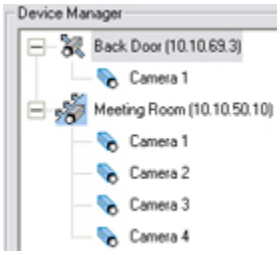
You are able to add up to 64 cameras. If using video server devices on your system, bear in mind that many video server devices can have more than one camera connected to them. For example, a fully used four-port video server will count as four cameras.

Even though each device has its own IP address or host name, several cameras can be attached to a single device and thus share the same IP address or host name. This is typically the case with cameras attached to video server devices.

You can of course configure and use each camera individually, even when several cameras are attached to a single device.

In addition to IP video camera devices and IP video server devices it is possible to add a number of dedicated I/O (input/output) devices to NetDVR. When such I/O devices are added, they can be used in events-based system setup in the same way as a camera. For more information about using I/O devices, see Using Dedicated I/O Devices. For information about which I/O devices are supported, refer to the release note.

Once a device is added in NetDVR, any cameras attached to the device are automatically recognized by the software, and listed in the *Administrator* window's *Device Manager* section:



Detail from the *Administrator* window's *Device Manager* section—two devices have been added; the first device has a single camera attached, whereas the second device has four cameras attached

To add a device, use the following procedure:

Prerequisites: You must have configured IP address, password, etc. on the device itself, as described by the manufacturer.

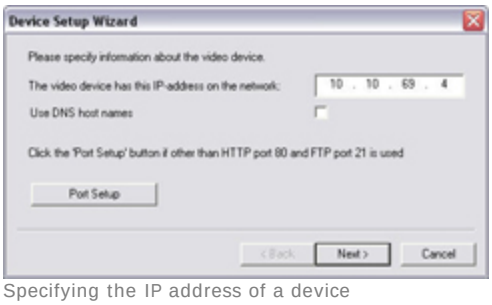
1. Open the *Administrator* window.
2. In the *Administrator* window, click the *Add Device...* button.

   This will start the *Device Setup Wizard*.
3. On the first step of the wizard, identify the required device, either by

   - Typing the IP address of the device. **Tip:** To jump to the next IP address segment in the field, press SPACE on your keyboard.

   - or -

   - Typing the DNS host name of the device. This requires that you select the *Use DNS host names* box


Device Setup Wizard
Please specify information about the video device.
The video device has this IP-address on the network:
10 . 10 . 69 . 4
Use DNS host names
Click the 'Port Setup' button if other than HTTP port 80 and FTP port 21 is used
Port Setup
< Back
Next >
Cancel
Specifying the IP address of a device

Note: By default, HTTP port 80 and FTP port 21 will be used for the device. If the device you are adding uses other port numbers, click the *Port Setup* button and specify required port numbers. The need for specifying different ports may often apply if the device is located behind a NAT-enabled router or a firewall. When this is the case, also remember to configure the router/firewall so it maps the ports and IP address used by the device.

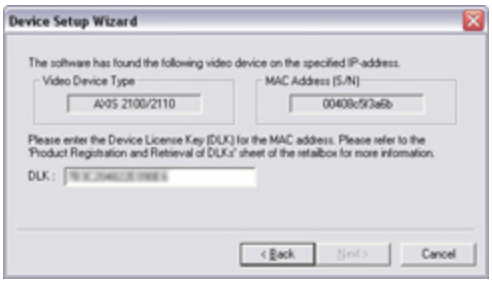
When ready, click *Next* to go to the second step of the wizard.

4. If a password is used for the device, type the password for the device's administrator account (called an “admin” or “"root” account on some devices).

   Leave the *Autodetect Device* option selected.

   Click *Next*.

5. When the device has been detected, type the Device License Key (DLK) for the device in the *DLK* field.


Device Setup Wizard
The software has found the following video device on the specified IP-address.
Video Device Type
AXIS 2100/2110
MAC Address (S/N)
00408c5f3a6b
Please enter the Device License Key (DLK) for the MAC address. Please refer to the 'Product Registration and Retrieval of DLKs.s' sheet of the retailbox for more information.
DLK :
< Back
Next >
Cancel
Specifying DLK for the device

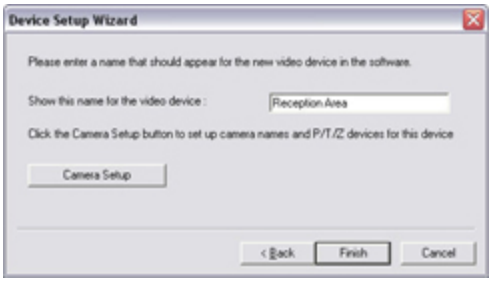
Tip: If you have imported DLKs (see How to Import Device License Keys), the *DLK* field will already be filled with the DLK for the device.

Click *Next*.

6. Assign a unique and descriptive name to the device.

   Upon completion of the wizard, the name will be used when listing devices and associated cameras in the *Administrator* window's *Device Manager* section.

   The name may, for example, refer to the physical location of the camera(s) attached to the device.


Device Setup Wizard
Please enter a name that should appear for the new video device in the software.
Show this name for the video device :
Reception Area
Click the Camera Setup button to set up camera names and P/T/Z devices for this device
Camera Setup
< Back
Finish
Cancel
Assigning a name to the device

Tip: You may click the *Camera Setup* button to access the *Camera Settings for ...* window, in which you are able to specify certain settings related to camera name and PTZ control. The latter requires that the camera is a PTZ (Pan/tilt/Zoom) camera.

7. Click *Finish*.

8. The device will be listed in the *Administrator* window's *Device Manager* section.

   To view a list of cameras attached to the device, click the plus sign ⊞ next to the device name.

   Tip: Cameras are listed for each device with default names, such as 'Camera 1,' etc. If you want to change the name of a camera, right-click the camera name in question, then select Edit from the menu that appears.

Tip: Individual cameras listed in the *Device Manager* section are by default enabled, meaning that images from the cameras are by default transferred to NetDVR—provided that the cameras are marked as *online* in the *Camera/Alert Scheduler* Window (also default). If required, you can disable a camera listed in the *Device Manager* section by right-clicking the name of the camera in question. See more information under *Administrator* window.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Edit device settings* window lets you edit the settings of an already installed device.

The *Edit device settings* window

Access: To access the *Edit device settings* window, select the required device in the *Administrator* window's *Device Manager* section, and click the *Edit Device...* button.

The *Edit device settings* window is divided into two sections:

- ### Identify Video Device Section

The *Identify Video Device* section contains the following fields, buttons, etc.:

Field, Button, ...	Description
Device Type	Select required device type from list. **Tip:**NetDVR is able to automatically detect device type as well as serial number, provided the IP address/hostname and password of the device have been specified in the *IP-address/DNS Host Name* and *Root Password* fields: Simply click the *Detect Device* button to auto-detect device type and serial number.
Detect Device	Click button to auto-detect device type and serial number. **Note:** Use of the auto-detect feature requires that the IP address and password of the device have been specified in the *IP-address* and *Root Password* fields.
Device Name	Name used to identify the device. **Tip:** To enable easy identification of devices, it is often a good idea to use a device name that refers to the physical area covered by the cameras attached to the device (examples: Reception Area, Car Park B, Entrance Door, ...). **Note:** Device names must be unique; you cannot use the same name for several devices.
Camera Settings...	Opens the *Camera Settings for [Device Name]* window, in which you are able to specify a number of settings for cameras attached to the device, including: • Port through which PTZ (Pan/Tilt/Zoom) cameras are controlled • Camera names, types, and ports **Note:** The number of settings available in the *Camera Settings for [Device Name]* window may be limited if cameras are not PTZ cameras or connected to a video server device.
Device Serial Number	Serial number of device; usually identical to the 12-character MAC address of the device (example: 0123456789AF). **Tip:**NetDVR is able to automatically detect serial number as well as device type, provided the IP address/host name and password of the device have been specified in the *IP-address/DNS Host Name* and *Root Password* fields: Simply click the *Detect Device* button to auto-detect device type and serial number.
Device License Key	A 16-character license key (DLK) for the device, obtained when registering the software.
Enable iPIX	Enables the use of IPIX, a technology that allows viewing of 360-degree panoramic images. **Note:** Use of the IPIX technology requires either a dedicated IPIX camera or a regular camera equipped with a special IPIX camera lens for which a special IPIX license key is required. If the device in question is for a dedicated IPIX camera, the check box is selected by default, and you do not have to enter an IPIX license key in the neighboring field.
iPIX License Key	License key for using the IPIX technology, obtained when registering the software. **Note:** This information is only required if the *Enable iPIX* check box is selected manually.

- ### Network Settings for Video Device Section

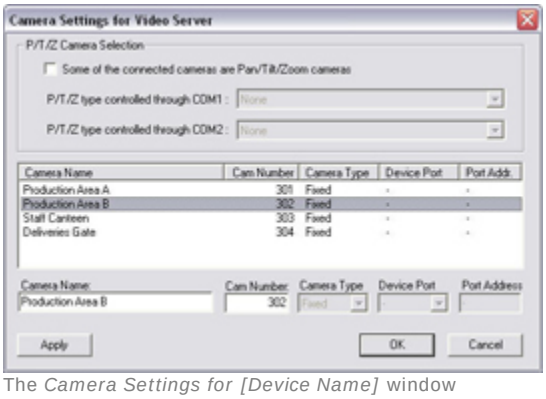
The *Network Settings for Video Device* section contains the following fields:

Field	Description
IP-address -or- **DNS Host Name**	IP address or DNS host name of the device in question. **Note:** If *Use DNS host name* check box is selected, the name of the *IP-address* field changes to *DNS/Host Name* in order to accommodate a DNS host name rather than an IP address.
Use DNS host name	By selecting the check box you are able to use a DNS host name for identifying the device instead of using the device's IP address. When check box is selected, the *IP-address* field changes its name to *DNS/Host Name*, ready to accommodate a DNS host name rather than an IP address.
Default Http Port	When selected, HTTP traffic to the device will go through the default port, port 80. If you want to use another port for HTTP traffic to the device, clear the check box, and specify required port number in the field to the left of the check box.
Default Ftp Port	When selected, FTP traffic to the device will go through the default port, port 21. If you want to use another port for FTP traffic to the device, clear the check box, and specify required port number in the field to the left of the check box.
Root Password	Password required in order to log in to the device using the root account (occasionally known as an *admin* or *administrator* account).

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Note: The number of settings available in the *Camera Settings for [Device Name]* window may be limited if cameras are not PTZ (Pan/Tilt/Zoom) cameras or connected to a video server device.

The *Camera Settings for [Device Name]* window lets you specify certain information about a device's cameras. This is particularly interesting for PTZ cameras and cameras attached to a video server device.



The *Camera Settings for [Device Name]* window

Access: You access the *Camera Settings for [Device Name] window* by clicking the *Camera Settings...* button in the *Edit device settings* window.

The *Camera Settings for [Device Name]* window is divided into a *P/T/Z Camera Selection* section and a camera list:

- ### P/T/Z Camera Selection Section

The *P/T/Z Camera selection* section contains the following fields:

Field	Description
Some of the connected cameras are Pan/Tilt/Zoom cameras	Select check box if any of the cameras attached to the video server device is a PTZ camera. If the check box is not available, PTZ is not supported for the device in question.
P/T/Z type controlled through COM1	Field available only if *Some of the connected cameras are Pan/Tilt/Zoom cameras* check box is selected. If a PTZ camera is controlled through the COM1 port on the video server device, select the required PTZ camera type from the list. If no PTZ cameras are controlled through the COM1 port, select *None*.
P/T/Z type controlled through COM2	Field available only if *Some of the connected cameras are Pan/Tilt/Zoom cameras* check box is selected. If a PTZ camera is controlled through the COM2 port on the video server device, select the required PTZ camera type from the list. If no PTZ cameras are controlled through the COM2 port, select *None*.

- ### Camera List and Fields

The camera list contains a line for each camera channel on the device. First line from the top corresponds to camera channel 1, second line from the top corresponds to camera channel 2, etc.

To change camera settings, select the required camera channel from the list, specify required information in the following fields, and click the *Apply* button:

Field	Description
Camera Name	Name used to identify the selected camera. Existing names, such as the default camera names *Camera 1, Camera 2*, etc. can be changed by overwriting the existing names. **Note:** Camera names must be unique for each device.
Cam Number	Users of the *NetGuard EVS* can take advantage of a range of keyboard shortcuts, some of which let the users toggle between viewing different cameras. Such shortcuts include numbers, which are used to identify each camera. Each camera's shortcut number is specified in the *Cam Number* field. A camera shortcut number must not contain any letters or special characters, and must be no longer than eight digits. Examples of correct camera shortcut numbers: *3*, *12345678*. Examples of incorrect camera shortcut numbers: *A*3*, *123456789*. It is highly recommended that you use a unique camera shortcut number for each camera. **Note:** Camera shortcut numbers are only used in the *NetGuard EVS*. In other applications, such as the *Monitor* or the *NetGuard*, the camera shortcuts cannot be used.

	Tip: You can also assign shortcut numbers to cameras in the *Camera Name and Number* window. **Tip:** More information about using keyboard shortcuts in the *NetGuard EVS* is available in Using Standard Keyboard Shortcuts.
Camera Type	Lets you select whether the camera on the selected camera channel is *Fixed* or *Moveable*: • *Fixed*: Camera mounted in a fixed position • *Moveable*: PTZ camera
Device Port	Available only if *Moveable* is selected in the *Camera Type* field. Lets you select which control port on the video server should be used for controlling PTZ functionality on the camera.
Port Address	Available only if *Moveable* is selected in the *Camera Type* field. Lets you specify port address of the camera. The port address would normally be *0* or *1*. If using daisy chained PTZ cameras, the port address will identify each of them, and you should verify your settings with those recommended in the cameras' manuals.

Camera Administration

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Adding Cameras

In NetDVR you do not have to worry about having to add individual cameras to the system:

Cameras are connected to devices, so once you have added the required devices to your NetDVR system (see *How to Add a Device*), all cameras connected to the devices are connected to the system as well.

Configuring Cameras

You are able to specify a wide variety of settings for each camera connected to the NetDVR system. Your entry point for such camera configuration is the *Administrator* window.

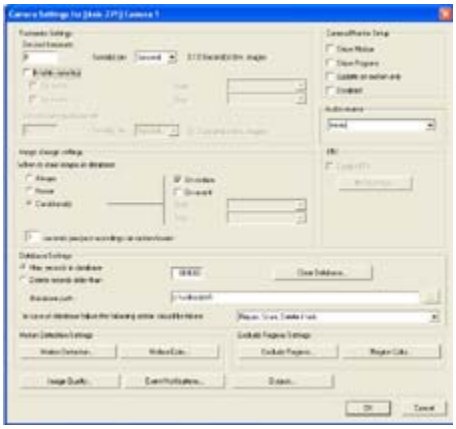
To configure a camera, select the required camera in the *Administrator* window's *Device Manager* section, then click the *Administrator* window's *Settings...* button.

This will open the *Camera Settings for [Device Name] [Camera Name]* window, in which you have access to settings for the camera in question, including:

- How the camera should record (frame rate, image quality, etc.)
- Where and when to store recorded images from the camera
- Motion detection sensitivity
- How images from the camera should appear when displayed in the *Monitor* application
- Triggering of notifications and external output
- ... and more

This also applies if you want to edit the settings for an already configured camera.
Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Camera Settings for [Device Name] [Camera Name]* window lets you specify settings for a particular camera.



Example: The *Camera Settings for [Device Name] [Camera Name]* window for a PTZ camera

Access: You are able to access the *Camera Settings for [Device Name] [Camera Name]* window in two ways:

- From the *Administrator* window, by selecting a camera in the *Device Manager* section, then clicking the *Settings...* button.
- From the *Monitor Manager window, by selecting the required camera, then clicking the Settings* button. The *Monitor Manager* window is only available when the recording server has been installed as an *application* (the *Monitor* application).

The *Camera Settings for [Device Name] [Camera Name]* window contains the following sections and buttons:

- ### Framerate Settings

  The *Framerate Settings* section lets you specify the camera's recording speeds in the following fields:

Field	Description
Desired framerate	Specify required number of frames in first field, and select required unit (per *Second*, per *Minute*, or per *Hour*) from the list. Example: 8 frames per second. **Tip:** When you specify a frame rate, the interval between images is automatically calculated and displayed to the right of the frame rate fields.
Enable speedup	NetDVR is able to increase the frame rate of a camera if motion is detected, or if an event occurs. Select the check box to enable increased frame rate on motion detection or on an external event, then specify the required conditions in the following fields.
On motion	Available only if the *Enable speedup* check box is selected.

	Select check box to use a higher frame rate when motion is detected. Remember to specify the required higher frame rate in the *Desired speedup framerate* fields. The camera will return to the original frame rate two seconds after the last motion is detected.
On event	**Note:** Use of speedup on event requires that events have been defined in the *I/O Setup window, accessed by* clicking the *I/O Setup...* button in the *Administrator* window. Available only if the *Enable speedup* check box is selected. Select check box to use a higher frame rate when an external event occurs and until another external event occurs, then select required start and stop events in the *Start* and *Stop* lists. The camera will increase its frame rate when the start event occurs, and return to the original frame rate when the stop event occurs. Remember to specify the required higher frame rate in the *Desired speedup framerate* fields.
Desired speedup framerate	Available only if the *Enable speedup* check box is selected. Specify required number of frames to be used when motion is detected and/or an external event occurs in first field, and select required unit (per *Second*, per *Minute*, or per *Hour*) from the list. The frame rate must be higher than the frame rate specified in the *Desired framerate* field. Example: 16 frames per second. **Tip:** When you specify a frame rate, the interval between images is automatically calculated and displayed to the right of the frame rate fields.

- ### Camera Monitor Setup

  In the *Camera Monitor Setup* section you are able to specify how images from the camera are displayed, primarily when viewed in the *Monitor* application:

Field	Description
Show Motion	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences. If selected, detected motion will be highlighted in the camera's images when viewed in the *Monitor*.

Motion highlighted in green when viewed in *Monitor*

Tip: You are able to select the motion detection highlight color by clicking the *Motion Color...* button in the *Motion Detection Settings* section.

Show Regions

Installation-dependent feature: Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences.

If selected, areas in which motion detection has been disabled will be highlighted in the camera's images when viewed in the *Monitor*.

Default highlighting color is blue.

Tip: You are able to change the color used to highlight areas with disabled motion detection by clicking the *Region Color...* button in the *Exclude Regions Settings* section.

Area with disabled motion detection highlighted in red when viewed in *Monitor*. Default highlighting color is blue.

Update on motion only

Installation-dependent feature: Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences.

If selected, the camera's images will only be updated in the *Monitor* when motion is detected.

Disabled

Cameras are by default enabled, meaning that images from the cameras are by default transferred to NetDVR—provided that the cameras are marked as online (also default) in the *Camera/Alert Scheduler* window.

If required, you can disable the camera. When the camera is disabled, no images will be transferred from the camera to NetDVR.

Note: If the *Monitor* application is installed, and images from a camera are displayed in the

	Monitor application (configured in the *Monitor Manager* window), the camera cannot be disabled. When this is the case, remove the camera from the *Monitor Manager* window's layout before disabling the camera. **Tip:** Individual cameras can also be disabled/enabled in the *Administrator* window's *Device Manager* section.

- ### Audio Source

In the *Audio source* section you are able to associate an audio source with the selected camera.

Note: The ability to associate an audio source with the selected camera requires that at least one audio source has been attached to a device on the surveillance system.

When an audio source is associated with a camera, audio from the source will automatically be presented when images from the camera are viewed. Note that you are able to select an audio source attached to another device than the selected camera.

To associate an audio source with the selected camera, simply select the required audio source from the list. For cameras attached to the same device as an audio source, the source is automatically selected and cannot be changed.

- ### Image Storage Settings

The *Image storage settings* section lets you specify when images received from the camera should be stored in the database. You specify this information in the following fields:

Field	Description
When to store images in database	Select when images received from the camera should be stored in the database: • *Always*: Always store all received images in the database. • *Never*: Never store any received images in the database. Live images will be displayed, but, since no images are kept in the database, users will not be able to browse images from the camera. • *Conditionally*: Store received images in the database when certain conditions are met. When you select this option, specify required conditions in the following fields.
On motion	Available only when the option *Conditionally* is selected, i.e. when images received from the camera should be stored in the database on certain conditions only. Select check box to store all images in which motion is detected.
On event	**Note:** Use of storage on event requires that events have been defined. Read more about events in About Input, Events & Output ... Available only when the option *Conditionally* is selected, i.e. when images received from the camera should be stored in the database on certain conditions only. Select check box to store all images, regardless of motion, when an external event occurs and until another external event occurs, then select required start and stop events in the *Start* and *Stop* lists.
[Number of] seconds pre/post recordings on event	Available only when the option *Conditionally* is selected, i.e. when images received from the camera should be stored in the database on certain conditions only. You are able to store recordings from periods preceding and following detected motion

	and/or specified events. Using such a “pre/post buffer” can be advantageous: If, for example, you have defined that images should be stored when a door is opened, being able to see what happened immediately prior to the door being opened may be important. Specify the number of seconds for which you want to store images from before and after the storage conditions are met. Example: You have specified that images should be stored conditionally on event, with a start event called *Door Opened* and a stop event called *Door Closed*. With a pre/post buffer of three seconds, images will be stored from three seconds ***before*** *Door Opened* occurs to three seconds ***after*** *Door Closed* occurs. **Note:** Pre/post recording periods cannot be displayed in the timelines of the *NetGuard EVS*'s timeline browser. The fact that these periods cannot be displayed in the timeline browser's timelines does not affect recording.

- ### iPIX

Note: Functionality in the *iPIX* section is only available if the use of IPIX technology has been enabled for the device to which the camera is attached. For dedicated IPIX cameras, the use of IPIX technology is automatically enabled. If not dealing with a dedicated IPIX camera, you enable use of IPIX technology for a device in the *Edit device settings* window, accessed by selecting the required device in the *Administrator* window's *Device Manager* section, then clicking the *Administrator* window's *Edit Device...* button.

The iPIX section contains the following fields and buttons:

Field	Description
Enable iPIX	Select check box to enable the use of IPIX, a technology that allows viewing of 360-degree panoramic images through an advanced fish eye lens on the particular camera.
iPIX Settings...	Opens the *iPIX Camera Configuration* window, in which you configure the camera's IPIX functionality.

- ### Database Settings

The database for each camera is capable of containing a maximum of 600.000 records or 40 GB per day.

Note that camera databases also store recorded audio from associated audio sources; see Important Information about Using Audio for more information.

Tip: By using archiving it is possible to store recordings beyond the capabilities of the camera's database.

The Database Settings section lets you specify database settings for the camera, such as where the database containing the camera's recordings should be kept, how much to store, etc. You specify this information in the following fields:

Field	Description
Max. records in database	Select this option to limit the database size based on a *maximum allowed number* of records in the database. Specify required maximum number of records in the neighboring field. When the maximum number of records in the database is reached, the oldest record in the database will automatically be overwritten. A database can contain up to 600.000 records.

Delete records older than	Select this option to limit the database size based on the *age* of records in the database. Specify required number in neighboring field, and select required unit (*Minutes*, *Hours*, or *Days*) from the list. When records become older than the specified number of minutes, hours, or days, they will automatically be deleted. **Note:** A database can contain no more than 600,000 records, regardless of what maximum age has been defined.
Clear Database...	Click button to delete all records stored in the database for the camera in question. **WARNING:** Use with caution; all records in the database for the camera will be permanently deleted. As a security measure, you will be asked to confirm that you want to permanently delete all stored records for the camera. Records stored in archived databases will not be affected. **Note:** If the *Monitor* application or *Recording Server* service is running, the button will not be available. To make the button available, do the following: If the *Monitor* application is running, shut it down. If the *Recording Server* service is running, pause it by clicking the *Administrator* window's *Service Manager* button, then clicking the *Pause* button. **IMPORTANT:** No video or audio will be recorded while the *Monitor* application is shut down or the *Recording Server* service is paused.
Database path	Specify which local directory the database for the camera should be kept in. Example: C:\videodata\ To browse for a folder, click the browse button next to the *Database path* field. **Note:** Even though it is possible to specify a path to a network drive, it is highly recommended that you specify a path to a *local* drive. If using a path to a network drive, it will not be possible to save to the database should the network drive become unavailable. **Tip:** If you have several cameras, and several local drives are available, performance can be improved by distributing the databases of individual cameras across the local drives.
In case of database failure the following action should be taken	Select which action to take if the database becomes corrupted. The number of available actions depends on whether archiving has been enabled. You enable archiving for a camera in the *Archive setup* window, accessed from the *Administrator* window by clicking the *Archive Setup...* button. • *Repair, Scan, Delete if fails*: Default action. If the database becomes corrupted, two different repair methods will be attempted: a fast repair and a thorough repair. If both repair methods fail, the contents of the database will be deleted. • *Repair, Delete if fails*: If the database becomes corrupted, a fast repair will be attempted. If the fast repair fails, the contents of the database will be deleted. • *Repair, Archive if fails*: Available only if archiving is enabled for the camera. If the database becomes corrupted, a fast repair will be attempted. If the fast repair fails, the contents of the database will be archived. This action is recommended if archiving is enabled for the camera.

- *Delete (no repair)*: If the database becomes corrupted, the contents of the database will be deleted.
- *Archive (no repair)*: Available only if archiving is enabled for the camera. If the database becomes corrupted, the contents of the database will be archived.

  Tip: An archived corrupt database can be repaired by the *Viewer*: Open the *Viewer* and attempt to browse the archived recordings from the camera in question. Browsing will initially fail, but this will make the *Viewer* start repairing the corrupt database.

When the contents of the local database for the camera are either deleted or archived, the database is reset and will be ready for storing new recordings.

Note: No images can be recorded while the database is being repaired. For large installations, a repair may take several hours, especially if the *Repair, Scan, Delete if fails* action involving two different repair methods is selected, and the first repair method (fast repair) fails.

Note: In case recordings for a camera get bigger than expected, or the available drive space is suddenly reduced in another way, an advanced database resizing procedure will automatically take place:

- If archives are present on the same drive as the camera's database, the oldest archive for all cameras archived on that drive will be deleted
- If no archives are present on the drive containing the camera's database, the size of all camera databases on the drive will be reduced by deleting a percentage of their oldest recordings, thus temporarily limiting the size of all databases

When the recording server is restarted upon such database resizing, the original database sizes will be used. You should therefore make sure the drive size problem is solved, or adjust camera database sizes to reflect the altered drive size.

Tip: Should the database resizing procedure take place, you will be informed on-screen, in log files, and (if set up) through an e-mail and/or SMS alert.

- ### Motion Detection Settings

The *Motion Detection Settings* section contains two buttons for configuring the camera's motion detection:

Button	Description
Motion Detection...	Opens the *Adjust Motion Detection* window, in which you are able to specify motion detection sensitivity levels.
Motion Color...	Opens the *Color* window, in which you are able to select a color to be used for highlighting detected motion when images from the camera are viewed in the *Monitor* application. **Note:** Highlighting of detected motion in the *Monitor* application requires that the *Show Motion* check box in the *Camera Monitor Setup* section is selected.

- ### Exclude Regions Settings

The *Exclude Regions Settings* section contains two buttons for specifying areas in the camera's images in which motion detection should **not** be used:

Button	Description
Exclude Regions...	Opens the *Define Exclusion Regions* window, in which you are able to disable motion detection in specific areas of the camera's images. Disabling motion detection in certain areas may help you avoid detection of irrelevant motion, for example if the camera covers an area where a tree is swaying in the wind or where cars regularly pass by in the background.
Region Color...	Opens the *Select Color* window, in which you are able to select between three colors to be used for highlighting areas with disabled motion detection when images from the camera are viewed in the *Monitor* application. **Note:** Highlighting of areas with disabled motion detection in the *Monitor* application requires that the *Show Regions* check box in the *Camera Monitor Setup* section is selected.

- ### Image Quality...

The *Image Quality...* button opens the *Configure Device window, in which you are able to configure image resolution, compression, etc. for the camera.*

- ### Event Notifications...

The *Event Notifications...* button opens the *Setup Notifications on Events* window, in which you are able to select events for triggering event indications for the camera when displayed in the *Monitor* application, *NetGuard* or *NetGuard EVS*.

Note: The use of event notifications requires that at least one event has been specified for a device on your NetDVR system; the event does not have to be specified for the particular camera. Read more about events in About Input, Events & Output.

- ### Outputs...

The *Outputs...* button opens the *Output Settings for [Device Name] [Camera Name] window, in which you are able to specify which outputs (e.g. the sounding of a siren or the switching on of the lights) should be associated with motion detection and/or with output buttons for manually triggering output* when the camera is selected in the *Monitor* application, *NetGuard* and *NetGuard EVS* in the *Monitor* application and *NetGuard*.

Note: The use of outputs requires that at least one event has been specified for a device on your NetDVR system; the event does not have to be specified for the particular camera. You specify output events in the *I/O Setup window, accessed by clicking the I/O Setup...* button in the *Administrator* window.

- ### PTZ Preset Positions... (PTZ cameras only)

  Available only if the camera is a PTZ (Pan/Tilt/Zoom) camera supporting PTZ preset positions, the PTZ Preset Positions... button opens *PTZ Preset Positions for [Device Name] [Camera Name]* window, in which you are able to specify preset positions and patrolling for the camera.

  Note: If the *Monitor* application or *Recording Server* service is running, the button will not be available. To make the button available, do the following:

  If the *Monitor* application is running, shut it down.

  If the *Recording Server* service is running, pause it by clicking the *Administrator* window's *Service Manager...* button, then clicking the *Pause* button.

  IMPORTANT: No video or audio will be recorded while the *Monitor* application is shut down or the *Recording Server* service is paused.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Note: Settings in the *Configure Device* window are to a large extent camera-specific. The window's contents will therefore vary from camera to camera; descriptions in the following are thus for guidance only.

The *Configure Device* window lets you specify image quality settings, such as compression, resolution, etc. for a specific camera.

Example of the *Configure Device* window, with a preview image

Access: You access the *Configure Device* window by clicking the *Image Quality...* button in the *Camera Settings for [Device Name] [Camera Name]* window.

The *Configure Device* window is divided into a *Camera Settings* section and a preview image section:

- ### Camera Settings Section

  The *Camera Settings* section will typically contain controls for compression, bandwidth, resolution, color, contrast, brightness, image rotation, and similar.

  Include Date and Time in Image

  The *Camera Settings* section may feature an *Include Date and Time in Image* check box. When selected, date and time **from the camera** will be included in images from the camera.

Note: As cameras are separate units which may have separate timing devices, power supplies, etc., camera time and NetDVR system time may not correspond fully, and this may occasionally lead to confusion.
As all images are time-stamped by NetDVR upon reception, and exact date and time information for each image is thus already known, it is recommended that you keep the *Include Date and Time in Image* check box cleared.
Should you want to use the *Include Date and Time in Image* feature, it is recommended that you click the *Synchronize Time* button, if available. Clicking the *Synchronize Time* button will set camera time to system time, but does not guarantee that camera time will match system time indefinitely.

Tip: For consistent synchronization, you may, if supported by the camera, auto-synchronize camera and system time via a time server.

- ### Preview Image

  When adjusting camera settings, you are able to view the effect of your settings by clicking the *Preview Image* button, located at the bottom of the window.

  Clicking the *Preview Image* button will provide you with an image from the camera in question, as it would look with the settings specified in the *Camera Settings* section.

  When you have found the best possible camera settings, click *OK* to apply the settings for the camera.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Adjust Motion Detection* window lets you specify motion detection sensitivity for a specific camera.

Depending on your configuration, motion detection sensitivity settings may determine when recordings from the camera are transferred to the surveillance system, when alerts are generated, when external outputs (such as lights or sirens) are triggered, etc.

Motion detection sensitivity is therefore a key element in your NetDVR surveillance solution, and time spent on finding the best possible motion detection settings for each camera may help you later avoid unnecessary alerts, etc.

Depending on the physical location of the camera, it may be a very good idea to test motion detection settings under different physical conditions (day/night, windy/calm weather, etc.).

The *Adjust Motion Detection* window

Access: You access the *Adjust Motion Detection* window by clicking the *Motion Detection...* button in the *Camera Settings for [Device Name] [Camera Name]* window.

Note: Before you configure motion detection sensitivity for a camera, it is highly recommended that you have configured the camera's image quality settings, such as resolution, compression, etc., in the *Configure Device window, and tha*t you have specified any areas to be excluded from motion detection (for example if the camera covers an area where a tree is swaying in the wind or where cars regularly pass by in the background) in the

Define Exclusion Regions window. If you later change image quality settings and/or exclusion area settings, you should always test motion detection sensitivity settings afterwards.

The *Adjust Motion Detection* window features two sliders; one for setting *Noise Sensitivity* and one for setting *Motion Sensitivity*:

- ### Noise Sensitivity

  The *Noise Sensitivity* slider determines how much each pixel must change before it is regarded as motion. Insignificant changes, which should not be regarded as motion, are considered acceptable noise, hence the name of the slider.

  With a high noise sensitivity, very little change in a pixel is required before it is regarded as motion.

  Areas in which motion is detected are highlighted in the preview image. Select a slider position in which only detections you consider motion are highlighted.

  As an alternative to using the slider, you may specify a value between 0 and 256 in the field next to the slider to control the noise sensitivity setting.

  Tip: If you find the concept of noise sensitivity difficult to grasp, try dragging the slider to the left towards the *High* position: The more you drag the slider towards the *High* position, the more of the preview image becomes highlighted. This is because with a high noise sensitivity even the slightest change in a pixel will be regarded as motion.

- ### Motion Sensitivity

  The *Motion Sensitivity* slider determines how many pixels must change in the image before it is regarded as motion.

  The selected motion sensitivity level is indicated by the black vertical line in the motion level indication bar below the preview image. The black vertical line serves as a threshold: When detected motion is above the selected sensitivity level, the bar changes color from green to red, indicating a positive detection.

  As an alternative to using the slider, you may specify a value between 0 and 10,000 in the field next to the slider to control the motion sensitivity setting.

Note: Access to features in the Administrator application, including those described in the following, may require administrator rights.

The *Color* window lets you select a color to be used for highlighting detected motion when images from a camera are viewed in the *Monitor* application.

Access: You access the *Color* window by clicking the *Motion Color...* button in the *Camera Settings for [Device Name] [Camera Name]* window.

- ### Selecting a Color for Highlighting Detected Motion

  To select a color, pick the required color from the *Basic Colors* palette, and click *OK*.

  The ability to define custom colors is not available.

  Note: Highlighting of detected motion in the *Monitor* application requires that the *Show Motion* check box in the *Camera Monitor* section of the *Camera Settings for [Device Name] [Camera Name]* window is selected.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Define Exclusion Regions* window lets you disable motion detection in specific areas of a camera's images.

Disabling motion detection in certain areas may help you avoid detection of irrelevant motion, for example if the camera covers an area where a tree is swaying in the wind or where cars regularly pass by in the background.

Define Exclusion Regions
Please use the left/right mouse button to select/deselect areas in the image that should be excluded from motion detection. Motion will not be detected in the areas marked with blue.
Set All
Clear All
Auto
Show grid
OK
Cancel
The *Define Exclusion Regions* window, with an exclusion area highlighted in blue

Access: You access the *Define Exclusion Regions* window by clicking the *Exclude Regions...* button in the *Camera Settings for [Device Name] [Camera Name]* window.

- ## Defining Areas in which Motion Detection Should Be Disabled

  The *Define Exclusion Regions* window features a preview image from the camera. You define the areas in which motion detection should be disabled in the preview image, which is divided into small sections by a grid.

  To define areas in which motion detection should be disabled, drag the mouse pointer over the required areas in the preview image while pressing the mouse button down. Left mouse button selects a grid section; right mouse button clears a grid section. Selected areas are highlighted in blue.

  Tip: Even though areas in which motion detection should be disabled are always highlighted in blue in the *Define Exclusion Regions* window itself, you are able to select a different color for (the optional) highlighting of areas with disabled motion detection when images from the camera are viewed in the *Monitor* application. Such color selection takes place in the *Select Color* window.

- ## Define Exclusion Regions Window's Buttons and Check Boxes

  The *Define Exclusion Regions* window features the following buttons:

Button, Check Box	Description
Set All	Lets you quickly select all grid sections in the preview image. This may be advantageous if you want to disable motion detection in most areas of the image, in which case you can simply clear the few sections in which you do not want to disable motion detection.
Clear All	Lets you quickly clear all grid sections in the preview image.
Auto	By clicking the *Auto* button you can make NetDVR automatically detect areas with noise (insignificant changes in individual pixels which should not be regarded as motion) in the image, and automatically mark such areas as areas in which motion detection should be disabled. As the automatic detection is based on an analysis of a number of images, it may take a few seconds from you click the *Auto* button to noisy areas are detected and marked as areas in which motion detection should be disabled. **Note:** The automatic detection of noisy areas happens according to the noise sensitivity setting specified in the *Adjust Motion Detection* window. In order for the automatic detection of noisy areas to work as intended, it is recommended that you specify a noise

	sensitivity setting that matches your requirements before you make use of the automatic detection feature.
Show Grid	With the *Show grid* check box selected (default), the preview image contains a grid indicating the division of the preview image into selectable sections. With the *Show grid* check box cleared, the grid in the preview image is removed. This may provide a less obscured view of the preview image. Selection of areas in which motion detection should be disabled takes place the same way as when the grid is visible.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Select Color* window lets you select between three colors to be used for highlighting areas with disabled motion detection when images from the camera are viewed in the *Monitor* application.

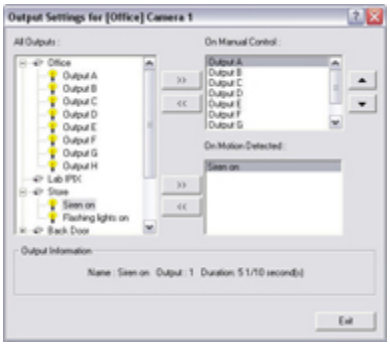
Color changes only have effect in the *Monitor* application; the default blue highlight color will always be used in the *Administrator* application.

Access: You access the *Select Color* window by clicking the *Region Color...* button in the *Camera Settings for [Device Name] [Camera Name]* window.

Note: Highlighting of areas with disabled motion detection in the *Monitor* application requires that the *Show Regions* check box in the *Camera Monitor Setup* section of the *Camera Settings for [Device Name] [Camera Name]* window is selected.
Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

In the *Output Settings for [Device Name] [Camera Name]* window you are able to associate a camera with particular external outputs, defined in the *I/O Setup* window, for example the sounding of a siren or the switching on of lights.

The associated outputs can be triggered automatically when motion is detected as well as manually through output buttons available in the *Monitor* application, *NetGuard* and *NetGuard EVS*. in the *Monitor* application and *NetGuard*.



The *Output Settings for [Device Name] [Camera Name]* window

Access: You access the *Output Settings for [Device Name] [Camera Name]* window from the *Camera Settings for [Device Name] [Camera Name]* window, by clicking the *Outputs...* button.

- ## Associating Outputs with Manual Control and Detected Motion

Note: Use of features in the *Output Settings for [Device Name] [Camera Name]* window requires that output has been defined in the *I/O Setup* window.

You have a high degree of flexibility when associating a camera with particular outputs:

- You are able to select between all available outputs, i.e. outputs defined as output events for the camera itself **as well as** outputs defined as output events for other devices on the NetDVR system
- The same output may be used for manual control through an output button **as well as** for automatic triggering when motion is detected

Selecting Output for Manual Control

You are able to specify outputs to be triggered manually through output buttons in the *Monitor* application or from a list in the *NetGuard* or *NetGuard EVS*.

Output buttons will become available in the Monitor when the camera is selected and the Monitor's Output button is clicked. In the *NetGuard* and *NetGuard EVS*, users will be able to trigger outputs by selecting them from a list.

To specify an output for manual triggering in the *Monitor* or *NetGuard*/*NetGuard EVS*, do the following:

1. Select the required output in the *All Outputs* list in the left side of the *Output Settings for [Device Name] [Camera Name]* window.

   Tip: When you select an output in the *All Outputs* list, you can view detailed information about the selected output under *Output Information* in the lower part of the window.

2. Click the >> button located between the *All Outputs* list and the *On Manual Control* list.

   This will copy the selected output to the *On Manual Control* list.

Note: An unlimited number of outputs may be selected this way, but only the top eight outputs in the list will be available as output buttons in the *Monitor*. In the *NetGuard* and *NetGuard EVS* there are no limitations to the number of available outputs.

You are able to determine each output's position among the *Monitor*'s output buttons or the *NetGuard*'s and *NetGuard EVS*'s output list by moving the selected output up or down in the *On Manual Control* list with the *up* and *down* buttons located to the right of the list. The selected output is moved up one step each time you click the *up* button. Likewise, each time you click the *down* button, the selected output is moved down one step.

To remove an output from the *On Manual Control* list, simply select the required output, and click the << button located between the *All Outputs* list and the *On Manual Control* list.

Selecting Output for Use on Motion Detection

You are able to select outputs to be triggered automatically when motion is detected in images from the camera.

Tip: This feature does not require that a VMD (Video Motion Detection) event has been defined for the camera in the *I/O Setup* window.

To select an output for use when motion is detected in images from the camera:

3. Select the required output in the *All Outputs* list in the left side of the *Output Settings for [Device Name] [Camera Name]* window.

   Tip: When you select an output in the *All Outputs* list, you can view detailed information about the selected output under *Output Information* in the lower part of the window.

4. Click the >> button located between the *All Outputs* list and the *On Motion Detected* list.

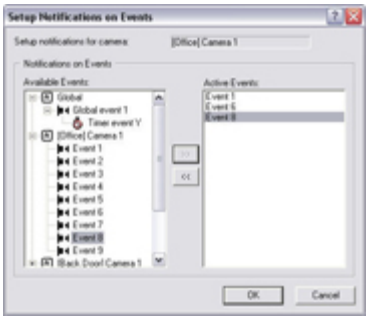
   This will copy the selected output to the *On Motion Detected* list.

To remove an output from the *On Motion Detected* list, simply select the required output, and click the << button located between the *All Outputs* list and the *On Motion Detected* list.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Note: The use of event notifications requires that at least one event has been specified for a device on your NetDVR system; the event does not have to be specified for the particular camera. You specify events in the *I/O Setup* window, accessed by clicking the *I/O Setup...* button in the *Administrator* window.

The *Setup Notifications on Events* window lets you select events for triggering event indications for the camera when displayed in the *Monitor* application, *NetGuard*, and *NetGuard EVS*.



The *Setup Notifications on Events* window

Access: You access the *Setup Notifications on Events* window from the *Camera settings for [Device Name] [Camera Name]* window, by clicking the *Event Notifications* button.

- ## What Is an Event Indication?

  In the *Monitor and NetGuard*/*NetGuard EVS*, three different color indicators are available for each camera: a yellow indicator, a red indicator, and a green indicator. When event indication is used for a camera, the yellow indicator will light up when the specified events have occurred.

  Event indications can be valuable for camera operators, as they will be able to quickly detect that an event has occurred, even though their focus was perhaps on something else the moment the event occurred.

  Available indicators; the yellow indicator serves as the event indicator

  Tip: The other two indicators serve the following purposes: The red indicator lights up when motion has been detected, and the green indicator is used for indicating that images are received from a camera.

- ## Specifying Events for which Event Indication Should Be Used

  To specify which events should trigger an event indication for the camera, do the following for each required event:

  1. In the *Available Events* list, select the required event.

     Tip: You are not limited to events associated with a particular device: You are able to select between all available events (input events, timer events, event buttons) from all cameras on the NetDVR surveillance system.

  2. Click the >> button to copy the selected event to the *Active Events* list.

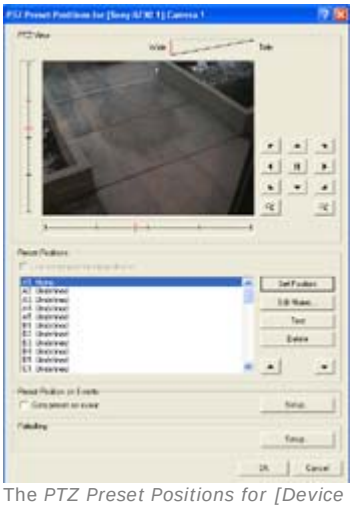
     When an event listed in the *Active Events* list occurs, the event indicator will light up.

  3. Repeat for each required event.

  To remove an event from the *Active Events* list, select the event in question, and click the << button.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Available only when dealing with a PTZ (Pan/Tilt/Zoom) camera supporting PTZ preset positions, the *PTZ Preset Positions for [Device Name] [Camera Name]* window lets you view and—for many, but not all, PTZ cameras—define preset positions for the PTZ camera.



The *PTZ Preset Positions for [Device Name] [Camera Name]* window

Access: To access the *PTZ Preset Positions for [Device Name] [Camera Name]* window, click the *PTZ Preset Positions...* button in the *Camera Settings for [Device Name [Camera Name]* window. The button is only available if the camera supports PTZ preset positions. Note that if the *Monitor application* or *Recording Server* service is running, the button will not be available; see the description of the *Camera Settings for [Device Name [Camera Name]* window for information about how to make the button available.

- ## Why Use Preset Positions?

  Defined preset positions can be used for making the PTZ camera automatically go to particular preset positions when particular events occur, and for specifying PTZ patrolling schemes.

  Defined preset positions will also become selectable in the *Monitor* application as well as in the *NetGuard*/*NetGuard EVS*, allowing users of these applications to move the PTZ camera to the preset positions.

- ## Absolute and Relative Positioning PTZ Cameras

  Your configuration options depend on whether the PTZ camera in question is of the absolute positioning or relative positioning kind:

  - ***Absolute*:** For an absolute positioning PTZ camera, you are able to define up to 50 preset positions. All 50 preset positions can be used in the *NetGuard* and *NetGuard EVS*. However, only the first 25 preset positions can be used in the *Monitor* application.

    You define a preset position by moving the PTZ camera to the required position with the controls in the *PTZ View* section, then naming the position in the window's *Preset Positions* section.

  - ***Relative*:** For a relative positioning PTZ camera, the number of preset positions will depend on the camera/video server and PTZ driver used.

    For some relative positioning PTZ cameras you will only be able to use preset positions defined on the camera/video server itself (when this is the case, the preset positions are typically defined through the camera/video server's "built-in" web page).

    For relative positioning PTZ cameras allowing definition of preset positions through the NetDVR system, you define a preset position by moving the PTZ camera to the required position with the controls in the *PTZ View* section, then naming the position in the window's *Preset Positions* section.

- ## How to Define a Preset Position

  To define a preset position, do the following:

  Note: Some PTZ cameras of the relative positioning kind do not allow you to define preset positions as described in the following; for such cameras, you should define preset positions on the camera/video server itself.

  1. First use the controls in the *PTZ Preset Positions for [Device Name] [Camera Name]* window's *PTZ View* section to move the PTZ camera to the required position.

  2. Having moved the PTZ camera to the required position, select an undefined item (may be labelled *Undefined* or with a position number) in the *Preset Positions* section's list of preset position names, and click the *Set Position* button to define a name for the preset position.

     For detailed information about the functionality of *PTZ Preset Positions for [Device Name] [Camera Name]* window—such as the ability to test your preset positions, the ability to combine preset positions with events, or the ability to use preset positions in PTZ patrolling schemes—see *Preset Positions for [Device Name] [Camera Name]* window's sections in the following.

  You are able to define up to 50 preset positions.

- ## PTZ Preset Positions for [Device Name] [Camera Name] Window's Sections

  Each of the *PTZ Preset Positions for [Device Name] [Camera Name]* window's sections are described in the following:

  - ### PTZ View Section

    The *PTZ View* section lets you control the PTZ camera, and watch the PTZ camera's movements. You use this section to move the PTZ camera to the positions you then define as presets positions in the *Preset Positions* section.

    To move the PTZ camera, simply click the required position in the preview picture.

    The *PTZ View* section also features sliders allowing you to move the PTZ camera along each of its axes: the X-axis (allowing you to pan left/right), the Y-axis (allowing you to tilt the camera up/down), and the Z-axis (enabling you to zoom in and out; the camera will zoom in when you move the slider towards *Tele*, and zoom out when you move the slider towards *Wide*).

As an alternative to clicking the required position in the preview or using the sliders, you can use the PTZ camera navigation buttons:

Moves the PTZ camera up and to the left

Moves the PTZ camera up

Moves the PTZ camera up and to the right

Moves the PTZ camera to the left

Moves the PTZ camera to its home position

Moves the PTZ camera to the right

Moves the PTZ camera down and to the left

Moves the PTZ camera down

Moves the PTZ camera down and to the right

Zoom out (one zoom level per click)

Zoom in (one zoom level per click)

- ## Preset Positions Section

Having specified a camera position in the *PTZ View* section, you define the required position as a preset in the *Preset Positions* section:

Button, Check Box	Description
Use preset positions from device	Available only for cameras supporting this feature. Check box to use preset positions defined on the camera or video server device. Using preset positions from the camera or video server device will clear any preset positions you have defined for the PTZ camera; you will therefore be asked to confirm your selection. **Note:** In order for preset positions from the camera or video server device to work with NetDVR, the names of the preset positions must contain only the characters A-Z, a-z and 0-9, and must not contain spaces. If preset position names on the camera or video server device contain other characters, or spaces, change the preset position names on the device before selecting the *Use preset positions from device* feature.
Set Position	Associates the preset position selected in the list with the position specified in the *PTZ View* section. If the preset position selected in the list is yet undefined, you will be asked to specify a name for the preset position.

	Tip: Since the name will appear on buttons in the *Monitor* application, specify a name that is short enough to appear on a button. If the name is too long, it will be truncated when used on the button in the *Monitor*. The *NetGuard*/*NetGuard EVS* is capable of displaying even long preset position names.
Edit Name...	Lets you edit a preset position name selected in the list. Only works for an already defined preset position name.
Test	Lets you test a defined preset position. Select the required preset position in the list, then click the *Test* button. The effect is displayed instantly in the *PTZ View* section.
Delete	Lets you delete a preset position selected in the list. When a preset position name is deleted, it will appear as undefined in the list.
[Move up] **[Move down]**	Lets you move a preset position selected in the list up and down respectively. The selected preset position is moved one step per click. By moving preset position up or down, you are able to control the sequence in which available preset positions are presented in the *Monitor* application and in the *NetGuard* and *NetGuard EVS*: In the *Monitor*, preset position buttons are grouped in five preset banks (A-E) of five buttons each (1-5). By moving a preset position up or down, you can thus determine which preset bank and which button number should be used for a particular preset position. In the *NetGuard* and *NetGuard EVS*, users select preset positions from a list. By moving a preset position up or down in the *Preset Positions* section's list, you can thus determine the sequence in which preset positions are presented in the *NetGuard*'s or *NetGuard EVS*'s list. Display of preset positions in *Monitor*. Administrators are able to specify the sequence in which available preset positions are displayed in the various applications.

- ### Preset Position on Events Section

  If you have specified input or VMD events, event buttons or generic events, you are able to make the PTZ camera automatically go to particular preset positions when particular events occur.

  To configure the use of preset positions on events, click the *Setup...* button. This will open the *Event* window (for preset positions on event), in which you are able to associate particular preset positions with particular events.

  To use preset positions on event, select the *Goto preset on event* check box.

- ### Patrolling Section

  To configure PTZ patrolling (the automatic movement of a PTZ camera between several preset positions), click the *Setup...* button to go to the *Setup PTZ Patrolling* window.

  PTZ patrolling requires that at least two preset positions have been defined.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Available only when dealing with a PTZ (Pan/Tilt/Zoom) camera, the *Event* window (for preset positions on events) lets you associate particular preset positions with particular events, timer events or event buttons. You are thus able to make the PTZ camera automatically go to a particular preset position when a particular event occurs.

The *Event* window (for preset positions on events)

Access: To access the *Event* window (for preset positions on events), click the *Setup...* button in *Preset Position on Events* section of the *PTZ Preset Positions for [Device Name] [Camera Name]* window.

Note: To use preset positions on events, you must have specified input or VMD events, event buttons or generic events. Only one PTZ preset position can be defined per event per camera.

- ### Associating Preset Positions with Particular Events

  When associating a preset position from a particular PTZ camera with one or more events, you are able to select between **all** events defined on the NetDVR system; you are not limited to selecting events defined on a particular device.

  To associate a particular preset position with a particular event, do the following:

  1. Select the required preset position in the *Available Preset Positions* list in the left side of the *Event* window.

  2. Select the required event in the list of available events (the list in the middle of the window).

  3. Click the >> button located to the right of the *Available Events* list.

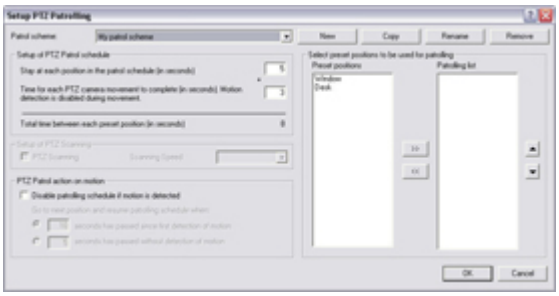
     This will copy the selected event to the window's rightmost list, in which events associated with the selected preset position are listed. When the selected event occurs, or when the selected event button is clicked, the PTZ camera will automatically move to the required preset position.

You are able to associate a preset position with more than one event: Simply repeat the process for each required association.

To end the association between a particular preset position and a particular event, simply select the required event in the window's rightmost list, and click the << button.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Available only when dealing with a PTZ (Pan/Tilt/Zoom) camera, the *Setup PTZ Patrolling* window lets you configure patrol schemes for PTZ patrolling (the automatic movement of a PTZ camera between several preset positions) for the camera.



The *Setup PTZ Patrolling* window

Access: To access the *Setup PTZ Patrolling* window, click the *Setup...* button in *Patrolling* section of the *PTZ Preset Positions for [Device Name] [Camera Name]* window.

Note: To use patrolling, you must have specified at least two preset positions for the PTZ camera in question.

Tip: Although it is technically not patrolling, specifying a patrol scheme with only one preset position is possible. A patrol scheme with only one preset position can, when combined with scheduling, be useful in two cases: For moving a PTZ camera to a specific position at a specific time, and for moving a PTZ camera to a specific position upon manual PTZ control of the camera.

Note: When you have defined your patrol schemes, also remember to schedule use of the patrol schemes in the *Camera/Alert Scheduler* window.

Note: Bear in mind that patrolling can be overridden if operators (with the necessary user rights) manually control PTZ cameras.

- ### Patrol Scheme

  A PTZ camera may patrol according to several different patrol schemes. For example, a PTZ camera in a supermarket may patrol according to one patrol scheme during opening hours, and according to another patrol scheme when the supermarket is closed.

  The *Patrol scheme* list lets you select which patrol scheme to configure.

  Defining a New Patrol Scheme

  To define a new patrol scheme, click the *New* button. This will add a *New patrol scheme* listing to the *Patrol scheme* list.

  To change the name from *New patrol scheme* to a name of your choice, select the *New patrol scheme* listing, and click the *Rename* button.

  Copying an Existing Patrol Scheme

  If you want to create a new patrol scheme based on an existing one, you can copy the existing patrol scheme.

  To copy an existing patrol scheme, select the required patrol scheme in the *Patrol scheme* list, and click the *Copy* button. This will add a copy of the selected patrol scheme to the list.

The copy will initially be named *Copy of [Patrol Scheme Name]*. To change the name to a name of your choice, select the *Copy of [Patrol Scheme Name]* listing, and click the *Rename* button.

Renaming an Existing Patrol Scheme

To change the name of an existing patrol scheme, select the required patrol scheme in the *Patrol scheme* list, and click the *Rename* button.

Removing an Existing Patrol Scheme

To remove an existing patrol scheme, select the required patrol scheme in the *Patrol scheme* list, and click the *Remove* button.

Note: The selected patrol scheme will be removed from the list without further warning.

- ## Selecting Preset Positions to Be Used for a PTZ Patrol Scheme

Having selected a patrolling scheme in the *Patrol scheme* list, you are able to specify which of the PTZ camera's preset positions should be used for the selected patrolling scheme:

1. In the *Preset Positions* list, select the names of the preset positions you want to use.

   A preset position can be used more than once in a patrol scheme, for example if the preset position covers an especially important location.

   Tip: By pressing the CTRL or SHIFT buttons on your keyboard while selecting from the *Preset Positions* list, you are able to select several or all of list's preset positions in one go.

2. Click the >> button to copy the selected preset positions to the *Patrolling list*.

3. The camera will move between preset positions in the sequence they appear in the *Patrolling list*, starting at the preset position listed first.

   If you want to change the sequence of preset positions in the *Preset Positions* list, select a preset position name, and use the *move up* or *move down* buttons to move the selected preset position name.

To remove a preset position from the *Patrolling list*, select the preset position in question, and click the << button.

- ## Specifying Timing Settings for a PTZ Patrol Scheme

Having selected a patrolling scheme in the *Patrol scheme* list, you are able to specify timing settings for the patrol scheme:

1. In the *Stay at each position in the patrol schedule* field, specify the number of seconds for which the PTZ camera should stay at each preset position.

2. In the *Time for each PTZ camera movement to complete* field, specify the number of seconds required for the PTZ camera to move between preset positions.

   In order not to generate false motion alarms, motion detection for the PTZ camera is automatically disabled while the camera moves between two preset positions. After the specified number of seconds, motion detection is automatically enabled again.

   It is thus important that the camera is able to reach all of the patrolling scheme's preset positions within the number of seconds you specify. If not, false motion is likely to be detected.

   Bear in mind that it takes longer for the PTZ camera to move between positions that are located physically far apart (e.g. from an extreme left position to an extreme right position) than between positions that are located physically close together.

3. The total number of seconds between each preset position will be listed below the two fields.

- ### PTZ Patrolling Actions on Detected Motion

  You are able to combine a PTZ patrol scheme with motion detection, so that when motion is detected, the PTZ camera will pause its patrolling and remain at the position where motion was detected for a specified period of time.

  To use this feature, do the following:

  1. Select the *Disable patrolling schedule if motion is detected* check box.
  2. Select whether the PTZ camera should resume patrolling:
     - When a certain number of seconds has passed since first detection of motion, regardless whether further motion is detected

     - or -

     - When a certain number of seconds has passed without further detection of motion
  3. Specify the required number of seconds for selected option.

     Example: You may specify that the PTZ camera should go to the next preset position and resume patrolling when 10 seconds has passed without detection of motion.

- ### PTZ Scanning

  PTZ scanning is supported on a few devices only. If your device supports PTZ scanning, the *Setup of PTZ Scanning* section lets you enable PTZ scanning and select a PTZ scanning speed.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Note: Use of the IPIX technology requires a dedicated IPIX camera or a special IPIX camera lens with a special IPIX license key, specified in the *Edit Device Settings* window.

IPIX is a technology that allows viewing of 360-degree panoramic images through an advanced “fish eye” lens. The *iPIX Camera Configuration* window lets you configure the IPIX functionality of a camera.

The *iPIX Camera Configuration* window

Access: You access the *iPIX Camera Configuration* window from the *Camera Settings for [Device Name] [Camera name]* window, by selecting the *Enable iPIX* check box, and clicking the *iPIX Settings...* button.

- ### IPIX View Adjustment

The camera's IPIX functionality is configured by adjusting its IPIX view field, indicated by a green ellipse in the preview image, so it encloses the actual image area of the “fish eye” lens.

You do this by specifying a number of values which will be used by the IPIX technology for converting the elliptic image into an ordinary rectangular image.

You are able to set the ellipse's X-radius, Y-radius, X-center, and Y-center, either by specifying the required values directly in the four fields, or by using the following buttons to adjust the ellipse:

Button	Description
R-	Decreases the radius of the IPIX view field. The ellipse's horizontal (X) and vertical (Y) radiuses are changed at the same time, keeping the aspect ratio.
R+	Increases the radius of the IPIX view field. The ellipse's horizontal (X) and vertical (Y) radiuses are changed at the same time, keeping the aspect ratio.
Rx-	Decreases the horizontal (X) radius of the ellipse.
Rx+	Increases the horizontal (X) radius of the ellipse.
Ry-	Decreases the vertical (Y) radius of the ellipse.
Ry+	Increases the vertical (Y) radius of the ellipse.
X-	Moves the ellipse to the left.
X+	Moves the ellipse to the right.
Y-	Moves the ellipse up.
Y+	Moves the ellipse down.

- ## Previewing the IPIX View

You are able to toggle between previewing the “fish eye” view and the IPIX-rendered view, i.e. the original elliptic view as well as the “flattened” rectangular view resulting from applying the IPIX algorithm according to your specified values.

To toggle between the two different types of preview, click the *Toggle Preview* button.

When previewing the IPIX-rendered view, the following navigation buttons become available for moving around within the preview image area:

Moves the IPIX-rendered view up and to the left

Moves the IPIX-rendered view up

Moves the IPIX-rendered view up and to the right

Moves the IPIX-rendered view to the left

Moves the IPIX-rendered view to its home position

Moves the IPIX-rendered view to the right

Moves the IPIX-rendered view down and to the left

Moves the IPIX-rendered view down

Moves the IPIX-rendered view down and to the right

Zoom out (one zoom level per click)

Zoom in (one zoom level per click)

Ceiling Mounted Cameras

If the camera is mounted on a ceiling, you can adjust the behavior of the navigation buttons to reflect this by selecting the *Ceiling Mount* check box.

Setting a View as Home Position

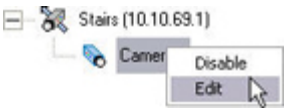
When previewing the IPIX-rendered view, you are able to set a particular position in the IPIX-rendered view as the camera's PTZ home position: Navigate to the required position, using the navigation buttons, then click the *Set View as Home Position* button.

- **Image Resolution**

  Image resolution values are automatically displayed in the lower part of the window, next to the navigation buttons. When using IPIX, image resolution will automatically be set to the highest available resolution.

The *Camera Name and Number* window lets you edit the name of a selected camera, and, if required, assign a shortcut number to the selected camera.

Access: You access the *Camera Name and Number* window from the *Administrator* window's *device Manager* section: Right-click the name of the required camera, then select *Edit* from the menu that appears:



The *Camera Name and Number* window contains two fields:

Field	Description
Camera Name	Displays the name of the camera. If required, you are able to overwrite the existing camera name with a new one.
Camera Number	Users of the *NetGuard EVS* can take advantage of a range of keyboard shortcuts, some of which let the users toggle between viewing different cameras. Such shortcuts include numbers, which are used to identify each camera. Each camera's shortcut number is specified in the *Cam Number* field. A camera shortcut number must not contain any letters or special characters, and must be no longer than eight digits. Examples of correct camera shortcut numbers: *3*, *12345678*. Examples of incorrect camera shortcut numbers: *A*3*, *123456789*. It is highly recommended that you use a unique camera shortcut number for each camera. **Note:** Camera shortcut numbers are only used in the *NetGuard EVS*. In other applications, such as the *Monitor* or the *NetGuard*, the camera shortcuts cannot be used. **Tip:** More information about using keyboard shortcuts in the *NetGuard EVS* is available in Using Standard Keyboard Shortcuts.

Audio Source Administration

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Audio Device Settings* window lets you change basic settings for an audio source.

Access: You access the *Audio Device Settings* window from the *Administrator* window: Selecting an audio source in the *Administrator* window's *Device Manager* section, then click the *Settings* button.

Field, Check Box	Description
Device name	Displays the name of the audio source. If required, you are able to overwrite the existing audio source name with a new one.
Enabled	Lets you enable/disable use of the audio source. **Tip:** You can also enable/disable an audio source in the *Administrator* window: right-

click the required audio source in the *Administrator* window's *Device Manager* section, the select *Disable* or *Enable* from the menu that appears.

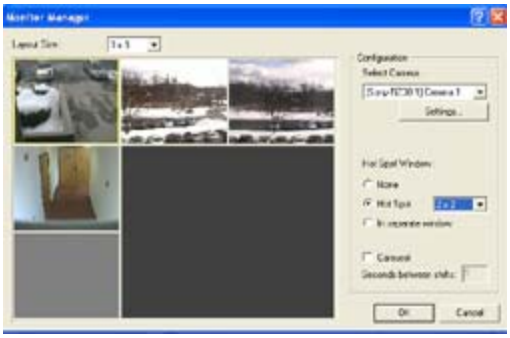
Note: On some devices, audio can also be enabled/disabled on the device itself, typically through the device's own configuration web page. If audio on a device does not work after enabling it in the *Administrator* application, you should thus verify whether the problem may be due to audio being disabled on the device itself.

Monitor Administration

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Installation-dependent window: Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), the *Monitor Manager* window is not available. See Installing the Software for more information about the installation differences.

The *Monitor Manager* window lets you specify which cameras to include in the *Monitor* application. It also lets you configure the layout of the *Monitor* application.



Monitor Manager window

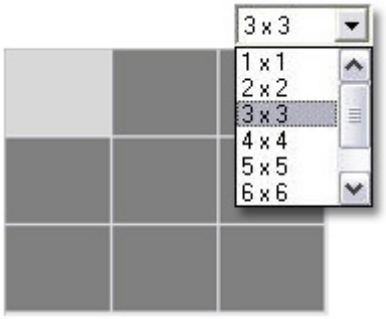
Access: You access the *Monitor Manager* window by clicking the *Monitor Manager...* button in the *Administrator* window. Note that the button is only available when the recording server has been installed as an application.

The *Monitor Manager* window features a *Layout Size* list as well as a *Configuration* section:

- ### Layout Size List

  In the *Layout Size* list you select the required grid for use in the *Monitor* application's camera layout.

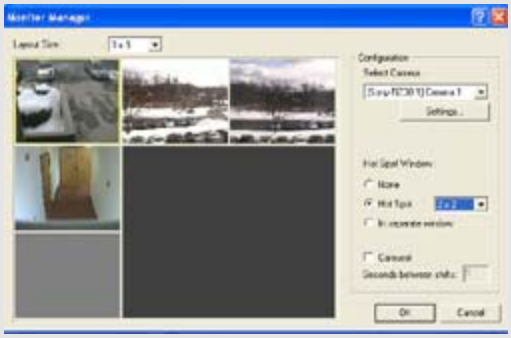
  Options are 1×1, 2×2, 3×3, etc. up to an 8×8 grid. A 3×3 camera layout grid, for example, will allow display of up to 9 cameras.



Selecting a 3×3 camera layout grid

- ## Configuration Section

In the *Monitor Manager* window's *Configuration* section, you select which cameras to display in the camera layout grid. You also select whether the *Monitor*'s hot spot and carousel features should be enabled.

Feature	Description
Select Camera	Lets you select a particular camera for use in a particular position in the camera layout grid. Select a position in the camera layout grid, then select a camera from the list to display images from the selected camera in the selected position. **Note:** Camera images are only transferred to NetDVR while the *Monitor* application is running.
Hot Spot Window	Lets you select the required hot spot functionality. With the hot spot, *Monitor* users are able to select a camera in the *Monitor*'s camera layout grid, and view enlarged images from the camera. The hot spot may also be used for point-and-click operations on some PTZ cameras. Select between three hot spot options: • ***None*:** No hot spot; default • ***Hot Spot*:** Select required size for the hot spot • ***In separate window*:** Hot spot is a separate, floating window When a hot spot is enabled, it will appear as a dark gray field in the camera layout grid (unless you have selected the *In separate window* option*):*  Configuration: A 3×3 grid with a 2×2 hot spot defined in the *Administrator*'s *Monitor Manager* window
Carousel	**Note:** Use of the carousel feature requires that a hot spot is enabled. With the carousel feature, you can make the hot spot automatically change between cameras in the *Monitor*'s camera layout grid. You specify the required interval between changes in the *Seconds between shifts* field.

- ### How to Specify which Cameras Should Display Images in the Monitor

To specify which cameras should display images in the *Monitor* application, do the following:

1. In the *Monitor Manager* window, select a grid size for the camera layout grid, e.g. 3×3.

   Note that if you want to use a hot spot (see description of *Monitor Manager* window's *Configuration* section), the space required for the hot spot will affect the number of camera positions will be available in the camera layout grid. For example, a 3×3 grid will normally contain nine camera positions; with a 2×2 hot spot, however, only five camera positions will be available.

2. Select a position in the *Monitor Manager* window's camera layout grid.

   The selected position will be indicated in light gray, whereas non-selected positions will be dark gray.

3. Select the required camera from the *Select Camera* list.

   An image from the selected camera will be displayed in the selected camera layout grid position. If an image from the camera is not yet available, a camera icon will appear.

   Note that a disabled camera cannot be selected (for more information about disabling/enabling cameras, see the description of the *Administrator* window).

4. Repeat step 2-3 for other required cameras.

Tip: You are always able to change the camera selection for a position in the layout grid. Simply select the required position (when a position already contains a camera image it will be highlighted with a yellow border when you select it), then select a different camera from the *Select Camera* list.

Recording Server Service Management

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

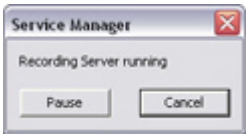
Installation-dependent window: Available only when the recording server has been installed as a *service* (the *Recording Server* service). If the recording server has been installed as an *application* (the *Monitor* application), the *Service Manager* window is not available. See Installing the Software for more information about the installation differences.

The *Service Manager* window lets you pause/resume the *Recording Server* service. Pausing the service is necessary in order to access some features, such as configuration of PTZ (Pan/Tilt/Zoom) cameras.

Access: You access the *Service Manager* window by clicking the *Service Manager...* button in the *Administrator* window. Note that the button is only available when the recording server has been installed as a *service*.

Pausing the Recording Server Service

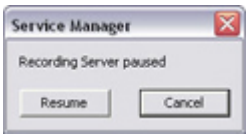
To pause the *Recording Server* service, click the *Pause* button.



IMPORTANT: While the service is paused, no video or audio will be recorded.

Resuming the Recording Server Service

When the service is paused, the *Service Manager* window closes. The next time you open it, the *Pause* button will have changed to *Resume*. Simply click the *Resume* button to resume the *Recording Server* service:



Tip: As a security measure, the service is furthermore automatically resumed when you close the *Administrator* application.

Stopped Recording Server Service

If the *Service Manager* window informs you that the recording server is stopped, the *Recording Server* service has been stopped (as opposed to paused) outside the *Administrator* application. Provided you have the required rights, you will be able to start a stopped *Recording Server* service from Windows by selecting *Start* > *Control Panel* > *Administrative Tools* > *Services*, then right-clicking *Recording Server* and selecting *Start* from the menu that appears.

Scheduling

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

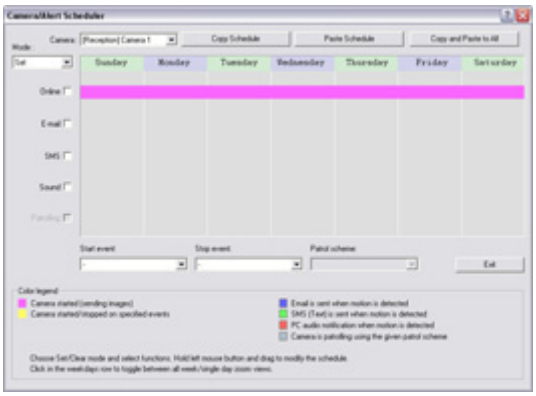
The *Camera/Alert Scheduler* window lets you specify when each camera should be online. A camera is online when it is transferring images to the NetDVR server for processing.

IMPORTANT: The fact that a camera is online (i.e. transferring images to the NetDVR server) will not necessarily mean that images from the camera are recorded (i.e. stored in the camera's database on the NetDVR server). Image storage settings for individual cameras are specified in the *Camera Settings for [Device Name] [Camera Name]* Window.

You are able to specify whether cameras should be online within specific periods of time, or whether they should start and stop transferring images when specific events occur within specific periods of time. You are also able to specify if e-mail alerts, SMS alerts or sound alerts should be triggered if motion is detected during specific periods of time. If using PTZ cameras with patrolling, you are furthermore able to specify if a certain patrol scheme should be used during specific periods of time.

By default, cameras added to NetDVR will automatically be online, and you will only need to modify the *Camera/Alert Scheduler* window's settings if you require cameras to be online only at specific times or events, or if you want to use specific alerts or PTZ patrol schemes. Note, however, that this default may be changed by clearing the *General Settings* window's *Create Default schedule for new cameras* check box: If the check box is cleared, subsequently added cameras will not automatically be online, in which case online schedules must be specified manually.

Access: To access the *Camera/Alert Scheduler* window, click the *Scheduler...* button in the *Administrator* window.



Camera/Alert Scheduler window

- **Camera / Alert Scheduler Window's Fields and Check Boxes**

The Camera/Alert Scheduler Window features the following fields and check boxes:

Field, Check Box	Description
Camera	Lets you select a particular camera, for which to specify or view a schedule in the window's calendar section. **Note:** Always verify that you have selected the required camera in the list; even though schedules displayed in the calendar section may look—and indeed sometimes be—similar, the displayed schedule refers specifically to the selected camera.
Mode	Select whether to add or delete periods in the calendar section: • ***Set*:** Add periods. May also be used to overwrite existing periods. • ***Clear*:** Delete existing periods.
Online	Check the *Online* box when you want to set or clear online periods for the selected camera.
E-mail	Check the *E-mail* box when you want to set or clear periods with e-mail alerts for the selected camera. Such e-mail alerts can automatically be sent to one or more recipients when motion is detected or specific events (see About Input, Events & Output ...) occur. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
SMS	Check the *SMS* box when you want to set or clear periods with SMS (mobile phone text message) alerts for the selected camera. Such SMS alerts can automatically be sent to one or more recipients when motion is detected or specific events (see About Input, Events & Output ...) occur. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings window.*
Sound	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences.

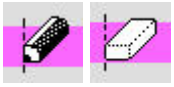
	Check the *Sound* box when you want to set or clear periods with sound alerts for the selected camera in the *Monitor* application. **Note:** The *Sound* box is solely used when setting or clearing periods with sound alerts. It cannot be used for scheduling audio recordings, as audio recordings are not scheduled separately. If a device on your system supports audio recording, audio is automatically recorded on the device's camera channel one when the camera is online.
Patrolling	Check the *Patrolling* box when you want to set or clear periods with patrolling for a selected PTZ (Pan/Tilt/Zoom)camera. **Note:** The *Patrolling* box is only available if you have selected a PTZ camera for which at least one patrol scheme has been set up.
Start event	When you set an *Online* period, you will be asked whether you want the selected camera to transfer images to the NetDVR software continuously within the specified period (*Always*), or only when an event occurs within the specified period (*On Event*). If using *On Event*, the *Start event* list lets you select the required start event. **Note:** The use of event-based online periods requires that events have been defined. Read more about events in About Input, Events & Output ...
Stop event	When you set an *Online* period, you will be asked whether you want the selected camera to transfer images to the NetDVR software continuously within the specified period (*Always*), or only when an event occurs within the specified period (*On Event*). If using *On Event*, the *Stop event* list lets you select the required stop event. **Note:** The use of event-based online periods requires that events have been defined. Read more about events in About Input, Events & Output ...
Patrol scheme	When you set a *Patrolling* period for a PTZ camera with patrolling, the *Patrol scheme* list lets you select the required patrol scheme. N**ote:** The *Patrol scheme* list is only available if you have selected a PTZ camera for which at least one patrol scheme has been set up.

- ## Camera/Alert Scheduler Window's Calendar Section

The *Camera/Alert Scheduler* window's calendar section lets you specify exact periods of time for each option for each camera selected in the window's *Camera* list.

Set and Clear Modes

Depending on your selection in the *Mode* list, you *Set* or *Clear* periods in the calendar. Your selection is indicated by your mouse pointer turning into either a pencil (*Set*) or an eraser (*Clear*) when inside the calendar section.



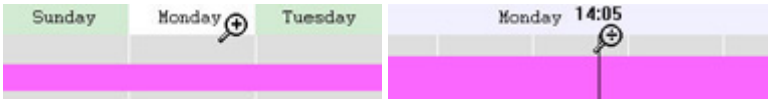
Mouse pointer turns into pencil (*Set*) or eraser (*Clear*) when inside calendar section

Zoom Feature

When placing your mouse pointer inside the day band in the top part of the calendar section you get access to the calendar's zoom feature.

With the zoom feature you are able to toggle between the calendar's default seven-day view and a single-day view.

The single-day view provides you with five-minute interval indications, allowing you to specify periods precisely.



Calendar's zoom feature allows you to toggle between seven-day and single-day views

- ## How to Set or Clear Periods in the Calendar

To set or clear a period in the *Camera/Alert Scheduler* window's calendar section, simply click at the required start point in the calendar, and drag to set/clear a period (depending on whether you have selected *Set* or *Clear* in the window's Mode list).

Good to Know when You Set Online Periods

When you set an *Online* period, you will be asked whether you want the selected camera to transfer images to the NetDVR software continuously within the specified period (*Always*), or only when an event occurs within the specified period (*On Event*).

If using *On Event*, remember to specify required start and stop events in the *Start event* and *Stop event* lists.

Good to Know when You Set Patrolling Periods

When you set a *Patrolling* period, you may be able to select between several patrol schemes. This will depend upon how many patrol schemes have been specified in the *Setup PTZ Patrolling* window.

You select the required patrol scheme from the *Patrol scheme* list, located below the calendar section. If you set patrolling periods with different patrol schemes immediately following each other in time, changes between patrolling schemes will be indicated by a thin vertical line (see also *Colored Bars* in the following).

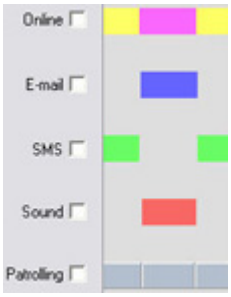
Note: The *Patrol scheme* list is only available if you have selected a PTZ camera for which at least one patrol scheme has been set up.

Colored Bars

The calendar uses colored bars to indicate active periods for each option (*Online*, *E-mail*, *SMS*, etc.):

- In the *Online* bar, active periods are indicated in either pink or yellow:
  - Pink (•) indicates that the selected camera is continuously transferring images to the NetDVR software.
  - Yellow (•) indicates that the selected camera transfers images to the NetDVR software when a specified event occurs.
- In the *E-mail* bar, active periods are indicated in blue (•).
- In the *SMS* bar, active periods are indicated in green (•).
- In the *Sound* bar, active periods are indicated in red (•).
- In the *Patrolling* bar, active periods are indicated in gray (•). Changes between patrolling schemes are indicated by a thin vertical line. Note that the *Patrolling* bar is only available if you have selected a PTZ camera for which patrolling has been set up.

  Tip: When several patrol schemes are in use, you are able to see which patrol scheme is used for a particular period: Click the relevant section of the gray bar; the name of the patrol scheme in question will appear in the *Patrol scheme* list, located below the calendar section.



Colored bars indicating active periods

- **Camera / Alerts Scheduler Window's Copy and Paste Buttons**

Button	Description
Copy Schedule	Lets you copy the schedule displayed in the calendar section. When used in combination with the *Paste Schedule* button, you are able to quickly re-use schedules from one camera to another.
Paste Schedule	Lets you paste a copied schedule for use with the selected camera. The same copied schedule can be pasted to several cameras simply by selecting, and pasting to, one camera after the other. **Tip:** If you want to use a schedule for all cameras, specify a schedule for one camera, then use the *Copy and Paste to All* button to copy the schedule and paste it to all cameras in one go.
Copy and Paste to All	Lets you copy the schedule displayed in the calendar section and paste it to all cameras in one go.

General Settings

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *General Settings* window lets you manage a variety of settings, such as user rights, e-mail and SMS settings, logging, etc.

Access: To access the *General Settings* window, click the *General Settings...* button in the *Administrator* window.

The *General Settings* window is divided into a number of sections:

- ## Administrator Settings

  The *Administrator Settings* section lets you password protect access to the *Administrator* application, and restrict user rights.

  When the *Enable Protection* check box is selected, users must supply the administrator password in order to be able to access the *Administrator* application, and in order to be able to use any of the features to which access has been restricted.

  ### Changing the Administrator Password

  To change the administrator password, click the *Change Password...* button to open the *Change Password* window.

  When an administrator password is in use, users accessing the *Administrator* application, or wishing to use protected features, must type the administrator password in the window before access is granted.

  ### Restricting Users' Rights

  To restrict how users who are not administrators use the *Monitor* application, select the *Enable Protection* check box, then select the features to which users who are not administrators **should** have access:

  Installation-dependent features: The ability to restrict users' access to the *Monitor* application is available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), the ability to restrict users' rights is not relevant. See Installing the Software for more information about the installation differences.

  - ***Application Startup*:** Allows users to start the *Monitor* application without having to specify the Administrator password.
  - ***Application Shutdown*:** Allows users to close the *Monitor* application.
  - ***Manual Control*:** Allows users to start and stop cameras manually in the *Monitor* application.
  - ***Start Administrator from Monitor*:** Allows users to open the *Administrator* application from the *Monitor* application without having to specify the administrator password.
  - ***Browser*:** Allows users to start the *Viewer* feature in the *Monitor* application. The *Viewer* lets users browse stored images, export images, etc.
  - ***PTZ Control*:** Allows users to use the *Monitor* application's *PTZ Menu* with Pan/Tilt/Zoom controls for installed PTZ cameras.
  - ***Quick Browse*:** Allows users to use the *Monitor* application's *Quick Browse* buttons for browsing newly stored images. Note that use of the *Quick Browse* buttons requires that a Hot Spot is enabled in the *Monitor* application.

Tip: Configuration of user rights may vary from organization to organization. However, users are typically allowed access to the following features: *Application Setup*, *Browser*, *PTZ Control*, and *Quick Browse*.

- ## Patrolling Settings

Note: Settings in this section are relevant only if you are using PTZ cameras for which patrolling has been set up.

The regular patrolling of PTZ cameras may be interrupted, either manually or when a particular event occurs. The *Patrolling settings* section lets you specify how many seconds should pass before the regular patrolling is resumed after a manual or event-based interruption. Default is 30 seconds.

The settings in this section will apply for all installed PTZ cameras.

Tip: PTZ patrolling for individual PTZ cameras is configured in the *Setup PTZ Patrolling* window.

- ## Joystick

Clicking the *Joystick Setup...* opens the *Joystick Setup* window, in which you are able to configure a joystick for use with PTZ cameras in the *Monitor* application.

Installation-dependent feature: Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences.

- ## Logfile Settings

The *Logfile Settings* section lets you specify where to keep the general log files containing information about activity in the *Administrator* and recording server, and how long for.

Separate log files are generated for the *Administrator* and recording server.

Furthermore, separate types of recording server log files are generated depending on whether the recording server has been installed as an application (the *Monitor* application) or as a service (the *Recording Server* service). See Installing the Software for more information about the installation differences.

Logfile Path

By default, the *Administrator* and recording server log files are stored in the folder containing the NetDVR software.

To specify another location for your log files, type the path to the required folder in the *Logfile Path* field, or click the browse button next to the field to browse to the required folder.

Days to Log

A new log file is created every day. A log file older than the number of days specified in the *Days to log* field is automatically deleted. By default, the log file will be stored for five days.

To specify another number of days, simply overwrite the value in the *Days to log* field.

The current day's activity is always logged, even with a value of *0* in the *Days to log* field. The maximum number of days to log is *9999*.

Tip: Read more about NetDVR logging in About Logging.

- ## Event Recording Settings

As opposed to the general log files, which contain information about activity on the surveillance system itself, event log files contain information about registered events (for more information about events, see About Input, Events & Output ...).

The *Event Recording Settings* section lets you specify where to keep event log files, and how long for.

Event log files should be viewed using the *Monitor* application's *Viewer* or the *NetGuard EVS*:

- ***Viewer*:** Select the *Viewer*'s Alarm Overview control panel, then click the *Events* button to view the events log.
- ***NetGuard EVS*:** In the *Browse* tab's *Alerts* section, select the required event, then click the *Get List* button to see when the event in question was detected.

Path

By default, event log files are stored in the folder containing the NetDVR software.

To specify another location for your log files, type the path to the required folder in the *Path* field, or click the browse button next to the field to browse to the required folder.

Days to Keep

A new event log file is created every day. Event log files older than the number of days specified in the *Days to keep* field are automatically deleted. By default, event log files will be stored for five days.

To specify another number of days, simply overwrite the value in the *Days to keep* field.

The current day's activity is always logged, even with a value of *0* in the *Days to keep* field. The maximum number of days to log is *9999*.

Tip: Read more about NetDVR logging in About Logging.

- ## Advanced

The *Advanced* section lets you specify a number of additional settings:

Check Box	Description
Disable Screen Update	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences. Turns off screen update in the *Monitor* application. If selected, all camera images displayed in the *Monitor* application will remain static, with the note "*Screen Update OFF*" displayed across the image from each camera. This will free up system resources, resulting in improved system performance, but will prevent users from viewing any live images through the *Monitor* application. Select this option if the *Monitor* application is not used on a daily basis, e.g. if the *Monitor* application is only used when the system administrator adjusts the software configuration.
Keyframe-only decoding	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences. With the MPEG standard, keyframes stored at specified intervals record the entire view of

	the camera, whereas the following frames record only pixels that change. If selected, only MPEG keyframes will be decoded and displayed in the *Monitor* application. Note that all frames from the MPEG stream will be stored in the camera database regardless of whether keyframe-only decoding is selected or not.
Disable Online Indicator	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences. Turns off the blinking green online indicator normally displayed for each camera in the *Monitor* application.
Keep Aspect Ratio	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences. If selected, camera images in the *Monitor* application will not be stretched to fit the cells in the *Monitor* application's camera layout. Rather, images will be displayed with the aspect radio with which they have been recorded. This may result in horizontal or vertical black bars appearing around the images from some cameras, almost as when viewing a film in the widescreen format on a regular TV screen.
Don't send e-mail on camera failures	If selected, no e-mail alerts will be sent if NetDVR loses contact with a camera. Otherwise, e-mail alerts will, provided the e-mail alert feature has been enabled in the *E-Mail setup* window, automatically be sent if NetDVR loses contact with a camera, regardless of any e-mail alerts periods defined in the *Camera/Alert Scheduler* window.
Don't send SMS on camera failures	If selected, no SMS alerts will be sent if NetDVR loses contact with a camera. Otherwise, SMS alerts will, provided the SMS alert feature has been enabled in the *SMS settings* window, automatically be sent if NetDVR loses contact with a camera, regardless of any e-mail alerts periods defined in the *Camera/Alert Scheduler* window.
Add Monitor to Startup group	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences. Adds the *Monitor* application to Windows' Startup group, making the *Monitor* application open automatically each time Windows is started on the computer.
Allow cameras to run in the background	**Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See Installing the Software for more information about the installation differences. If selected, it will be possible to let some or all of the cameras connected to the NetDVR server run “in the background,” i.e. without the cameras being included in the *Monitor* application. For such “background” cameras, the features of the *Monitor* application will not be immediately available (although recorded images from such cameras can still be browsed in

	the *Monitor* application's *Viewer*). However, "background" cameras can be accessed for viewing of live and recorded images through a *NetGuard* or *NetGuard EVS*. For further information, see Using Background Cameras. If *Allow cameras to run in the background* is not selected, cameras must be included in the in the *Monitor* application in order to be accessible; you include cameras in the *Monitor* application through the *Monitor Manager* window.
Start cameras on remote live requests	Cameras may be stopped, either manually in the *Monitor* application or because they have reached the end of an online schedule, in which case *NetGuard* and *NetGuard EVS* users will not be able to view live images from the cameras. However, if *Start cameras on remote live requests* is selected, NetGuard and NetGuard EVS users will be able to start the camera in the *Monitor* in order to view live images from the cameras.
Create default schedule for new cameras	If selected (default), a schedule specifying that the camera is always online (i.e. transferring images to NetDVR) will automatically be created in the *Camera/Alert Scheduler* window. The automatically created schedule can be edited manually at any time. If not selected, no schedule will automatically be created; meaning that the camera will not automatically be transferring images to NetDVR. When required, schedules can be added manually in the *Camera/Alert Scheduler* window.

- **Email Settings**

  Clicking the *Email Settings...* button opens the *E-Mail setup* window, in which you enable and configure the use of e-mail alerts.

- **Sms Settings**

  Clicking the *Sms Settings...* button opens the *SMS settings* window, in which you enable and configure the use of SMS alerts.

  Note: Use of the SMS alert feature requires that an external Siemens TC-35 GSM modem has been attached to a serial port on the computer running the NetDVR software.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Change Password* window lets you change the administrator password for your NetDVR solution.

The *Change Password* window

Access: To access the *Change Password* window, click the *Change Password...* button in the *General Settings* window.

- ### How to Change the Administrator Password

  To change the administrator password, do the following:

  1. Specify the current administrator password in the *Old password* field
  2. Specify the new administrator password in the *New password* field
  3. Repeat the new administrator password in the *New password (confirm)* field
  4. Click *OK*.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Installation-dependent window: Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), this window is not available. See Installing the Software for more information about the installation differences.

The *Joystick Setup* window lets you configure joystick control of PTZ cameras in the *Monitor* application. Joystick configuration control requires that a joystick is attached to the computer running NetDVR.

The *Joystick Setup* window

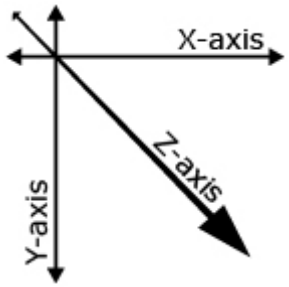
Access: To access the *Joystick Setup* window, click the *Joystick Setup...* button in the *General Settings* window.

The *Joystick Setup* window is divided into two sections: a *Joystick Axes* section and a *Joystick Buttons* section.

- ### Joystick Axes Section

  The *Joystick Axes* section lets you configure the axes used for the joystick.

  With a joystick, you are able to navigate PTZ camera images three-dimensionally, along three axes: an X-axis, a Y-axis, and a Z-axis, where the Z-axis refers to the depth (zoom) level:



Example: X-, Y-, and Z-axes

Button, Check Box	Description
Invert y-axis	Lets you invert the Y-axis. This way, you are able to select whether the PTZ camera should move up or down when you move the joystick towards you and away from you respectively.
z-axis uses a relative positioning scheme	Lets you specify whether the Z-axis should use a relative or an absolute positioning scheme. This will affect the way you zoom in and out with PTZ camera.
Default values	Resets axes settings, letting you use the joystick's default axes settings.

- ### Joystick Buttons Section

  The *Joystick Buttons* section lets you specify which joystick buttons should be used for particular actions.

  To assign an action to a particular joystick button, select the required action in the list, then click the required joystick button. When a button is assigned to an action, the name of the button will be listed together with the name of the action.

  To stop using a particular joystick button for a particular action, select the button/action in the list, then click the *Unselect* button.

  To free all joystick buttons from their associated actions, click the *Unselect All* button.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *E-Mail setup* window lets you enable and configure the use of e-mail alerts. Such e-mail alerts can automatically be sent to one or more recipients when motion is detected or specific events (see About Input, Events & Output ...) occur.

By default, SMTP (Simple Mail Transfer Protocol) is used when sending e-mail alerts. Compared with other mail transfer methods, SMTP has the advantage that you will avoid automatically triggered warnings from your e-mail client when an e-mail alert is to be sent. Such automatically triggered warnings may otherwise inform you that your e-mail client is trying to automatically send e-mail messages on your behalf.

The *E-mail setup* window

Access: To access the *E-Mail setup* window, click the *Email Settings...* button in the *General Settings* window.

- ## Enabling E-Mail Alerts

  You enable the use of e-mail alerts separately for the *Monitor* application or *Recording Server* (depending on which has been installed) and—if applicable—the *Monitor* application's *Viewer* feature:

  Note: When enabling e-mail alerts, also consider the e-mail alert schedules configured for each camera in the *Camera/Alert Scheduler* window.

  - ***Enable E-Mail (Monitor/Recording Server)*:** Select check box to enable the use of e-mail alerts when the *Monitor* application or *Recording Server* (depending on what has been installed) is running. E-mail alerts will then be sent when the following conditions apply:
    - the *Monitor* or *Recording Server* is running
    - motion is detected or an event, for which the sending of an e-mail alert has been defined, occurs
    - motion is detected or the event occurs within a period of time for which an e-mail alert schedule has been defined
  - ***Enable E-Mail (Viewer)*: Installation-dependent feature:** Available only when the recording server has been installed as an *application* (the*Monitor*application). If the recording server has been installed as a *service* (the*Recording Server* service), this feature is not relevant. See **Installing the Software** for more information about the installation differences.

    Select check box to enable the use of e-mail alerts in the *Monitor* application's *Viewer* feature. In effect, this will display the *E-Mail Report* button in the *Viewer*'s toolbar, enabling users to send evidence via e-mail. If you clear the check box, users will not see the *E-Mail Report* button in the *Viewer*'s toolbar.

- ### Specifying Recipients

  You specify the e-mail addresses to which e-mail alerts should be sent in the *Recipient(s)* field.

  If specifying more than one e-mail address, separate the e-mail addresses with semicolons (example: aa@aa.aa;bb@bb.bb;cc@cc.cc).

  Note: If e-mail alerts are enabled for the *Viewer*, the content you specify in the *Recipient(s)* field will appear as the default value in the *Viewer*'s dialog for sending evidence via e-mail. Users will be able to overwrite this default value.

- ### Specifying Sender Settings

  Specify sender information in the following fields:

  - ***Sender e-mail address*:** Type the e-mail address you wish to appear as the sender of the e-mail alert.
  - ***Outgoing mail (SMTP) server name*:** Type the name of the SMTP server which will be used for sending the e-mail alerts.
  - ***Server requires login*:** Select check box if a user name and password is required to use the SMTP server.
  - ***Username*:** Field available only when *Server requires login* is selected. Type the user name required for using the SMTP server.
  - ***Password*:** Field available only when *Server requires login* is selected. Type the password required for using the SMTP server.

- ### Specifying Default Subject and Message Texts

  Specify default subject and message texts in the following fields:

  - ***Subject text*:** Specify required subject text for e-mail alerts.
  - ***Message text*:** Specify required message text for e-mail alerts. Note that camera information as well as date and time information is automatically included in e-mail alerts.

  Note: If e-mail alerts are enabled for the *Viewer*, the content you specify in the *Subject text* and *Message text* fields will appear as default values in the *Viewer*'s dialog for sending evidence via e-mail. Users will be able to overwrite these default values.

- ### Specifying Image and Interval Options

  You are able to specify whether e-mail alerts should include images, and how much time should pass between alerts per camera:

  - ***Include Image*:** Select check box to include images in e-mail alerts. When selected, a JPG image from the time the triggering event occurred will be attached to each alert e-mail.
  - ***Time btw. mails (minutes)*:** Specify required minimum time (in minutes) to pass between the sending of each e-mail alert per camera.

    Examples: If specifying *5*, a minimum of five minutes will pass between the sending of each e-mail alert per camera, even if motion is detected or events occur in between. If specifying *0*, e-mail alerts will be sent each time motion is detected or events occur, potentially resulting in a very large number of e-mail alerts being sent. If using the value *0*, you should therefore consider the motion detection sensitivity configured for each camera in the *Adjust Motion Detection* window.

- ## Testing Your E-Mail Alert Configuration

  You are able to test your e-mail alert configuration by clicking the *Test* button. This will send a test e-mail to the specified recipients.

  If *Include Image* is selected, the test e-mail will have a test JPG image attached.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Note: Use of the SMS (mobile phone text message) alert feature requires that an external Siemens TC-35 GSM modem has been attached to a serial port on the computer running the NetDVR software.

The *SMS settings* window lets you enable and configure the use of SMS alerts. Such SMS alerts can automatically be sent to one or more recipients when motion is detected or specific events (see About Input, Events & Output ...) occur.

The *SMS settings* window

Access: To access the *SMS settings* window, click the *Sms Settings...* button in the *General Settings* window.

- ## Enabling SMS Alerts

  You enable the use of SMS alerts by selecting the *Enable SMS* check box.

  Note: When enabling the use of SMS alerts, also consider the SMS alert schedules configured for each camera in the *Camera/Alert Scheduler* window.

- ## Specifying SMS Alert Settings

  Having selected the *Enable SMS* check box, specify SMS alert settings in the following fields:

  - ***GSM modem con. to*:** Select port connecting the computer running NetDVR to the GSM modem.
  - ***SIM card PIN code*:** Specify PIN code for the SIM card inserted in the GSM modem.
  - ***SIM card PUK code*:** Specify PUK code for the SIM card inserted in the GSM modem.
  - ***SMS Central Phone No.*:** Specify the number of the SMS central to which the GSM modem should connect in order to send an SMS.
  - ***Recipient Phone No.*:** Specify the number of the telephone to which SMS alerts should be sent.
  - ***Message*:** Specify required message text for SMS alerts. Message text must be no longer that 100 characters, and must only contain the following characters: a-z, A-Z, 0-9 as well as commas (,) and full stops (.). Note that camera information as well as date and time information is automatically included in SMS alerts.

- ***Time btw. transmissions*:** Specify required minimum time (in minutes) to pass between the sending of each SMS alert per camera.

  Examples: If specifying *5*, a minimum of five minutes will pass between the sending of each SMS alert per camera, even if motion is detected or events occur in between. If specifying *0*, SMS alerts will be sent each time motion is detected or events occur, potentially resulting in a very large number of SMS alerts being sent. If using the value *0,* you should therefore consider the motion detection sensitivity configured for each camera in the *Adjust Motion Detection* window.

- ### Testing Your SMS Alert Configuration

  You are able to test your SMS alert configuration by clicking the *Test* button. This will send a test SMS to the specified recipients.

  Note: If the *Monitor* application or *Recording Server* service is running, the button will not be available. To make the button available, do the following:

  If the *Monitor* application is running, shut it down.

  If the *Recording Server* service is running, pause it by clicking the *Administrator* window's *Service Manager* button, then clicking the *Pause* button.

  IMPORTANT: No video or audio will be recorded while the *Monitor* application is shut down or the *Recording Server* service is paused.

Input, Events & Output

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Input received from a wide variety of sources can be used to generate events in NetDVR.

Events can in turn be used for automatically triggering actions in NetDVR, such as starting or stopping recording on cameras, triggering e-mail or SMS notifications, making PTZ cameras move to specific preset positions, making images automatically appear on NetMatrix recipients, etc. Events can also be used for activating output.

Output units can be attached to output ports on many devices, allowing you to activate lights, sirens, etc. from NetDVR. Such external output can be activated automatically by events, or manually from the *Monitor* application and *NetGuard* / *NetGuard EVS*.

Four Types of Events

You specify which types of input should generate which types of events. Basically, four types of events exist:

- On many devices you are able to attach external input units to input ports on the device. Events based on input from such external input units—typically sensors attached to doors, windows, etc.—are called ***input events***. Some devices also have their own capabilities for detecting motion, for detecting moving and/or static objects, etc. (typically configured in the devices' own software), in which case you are also able to use such detections from the device as input events.

- Input may also be received in the form of TCP or UDP data packages, which can be analyzed and, if matching specified criteria, used to generate events. Such events are called ***generic events***.

- Events may be based on NetDVR detecting motion on a camera. Such events are called ***VMD (i.e. Video Motion Detection) events***.

- Finally, events may be generated manually by users clicking custom-made buttons in NetDVR. Such buttons are called ***event buttons***.

Specifying Input, Events and Output

In NetDVR, your main entry point for configuration of input, event and output handling is the *Administrator* window:

- By clicking the *Administrator* window's *I/O Setup...* button, you open the *I/O Setup* window, in which you are able to specify each individual ***input event***, ***VMD event*** and ***output***.
- By clicking the *Administrator* window's *Event Buttons...* button, you open the *Event Buttons* window, in which you are able to specify ***event buttons*** for manually triggering events-controlled activity.
- By clicking the *Administrator* window's *Generic Events...* button, you open the *Generic Events* window, in which you are able to specify ***generic events***.
- By clicking the *Administrator* window's *I/O Control...* button, you open the *I/O Control* window, in which you are able to ***associate specific events with specific output***. This way you can, for example, specify that when motion is detected on a camera (typically specified as a VMD event) a siren should automatically sound (output). If you want users to be able to manually activate output when operating specific cameras, you specify this in the *Output Settings for [Device Name] [Camera Name]* window.

Note: Before you specify use of external input and output units on a device, verify that sensor operation is recognized by the device. Most devices are capable of showing this in their configuration interfaces, or via CGI script commands. Also check the NetDVR release notes to verify that input and output controlled operations are supported for the device and firmware used.

In addition to IP video camera devices and IP video server devices it is possible to add a number of dedicated I/O (input/output) devices to NetDVR (see How to Add a Device). For information about which I/O devices are supported, refer to the release note.

When such I/O devices are added, input on the I/O devices can be used to generate events in NetDVR, and events in NetDVR can be used for activating output on the I/O devices. This means that I/O devices can be used in your events-based system setup in the same way as a camera.

Note: When using some I/O devices it is necessary for the surveillance system to regularly check the state of the devices' input ports in order to detect whether input has been received. Such state checking at regular intervals is called *polling*. The interval between state checks, called a *polling frequency*, is specified in the *Advanced* window. For such I/O devices, the polling frequency should be set to the lowest possible value (one tenth of a second between state checks). For information about which I/O devices require polling, see the release note.

I/O Setup

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *I/O Setup* window lets you define input events, VMD (Video Motion Detection) events and output for devices on your surveillance system.

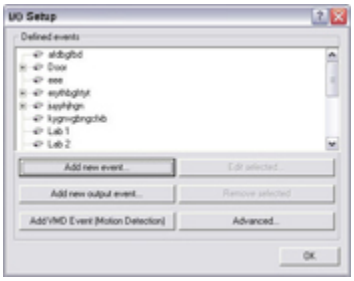
When events occur, they can trigger one or more actions:

- *Input events* occur when input from an external input unit is received on a device's input port, for example when an external sensor detects that a door is opened. Some devices also have their own capabilities for detecting motion, for detecting moving and/or static objects, etc. (configured in the devices' own software; typically by accessing a browser-based configuration interface on the device's IP address), in which case such detections from the device can also be used as input events.
- *VMD events* occur when NetDVR detects motion on a particular camera.
- *Outputs* are used for activating external output units, for example for switching on lights or sounding a siren.

The *I/O Setup* window is used for defining which input events, VMD events and outputs should be available on your system.

Input and VMD events can be used for triggering outputs or for triggering various actions on the surveillance system itself, such as for starting or stopping cameras (configured in the *Camera/Alert Scheduler* window) or for moving a PTZ camera to a particular preset position (configured in the *Event* window (for PTZ preset positions on event)).

Once you have defined input events, VMD events and outputs, you are able to associate specific input events or VMD events with specific outputs in the *I/O Control* window, so that, for example, lights are switched on when a door is opened or when motion is detected on a camera. Outputs may also be triggered by motion detection on a specific camera—even without a defined VMD event—or manually through output buttons in the *Monitor* application; both are configured in the *Output Settings for [Device Name] [Camera Name]* window.



The *I/O Setup* window

Access: You access the *I/O Setup* window by clicking the *I/O Setup...* button in the *Administrator* window.

Note: Before you specify inputs and outputs for a device, verify that sensor operation is recognized by the device. Most devices are capable of showing this in their configuration interfaces, or via CGI script commands. Also check NetDVR release notes to verify that input and output controlled operations are supported for the device and firmware used.

- ### I/O Setup Window's Defined Events List and Buttons

  The *I/O Setup* window features a *Defined events* list, in which input, output and VMD (Video Motion Detection) events defined for each device are listed.

  The window furthermore features a number of buttons for use when adding and configuring the events:

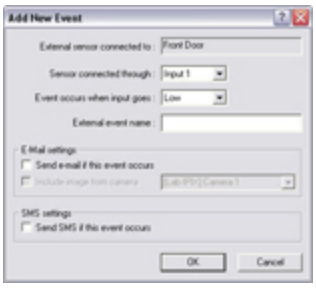
Button	Description
Add new event...	Used for defining input events on the device selected in the *Defined events* list. Depending on the type of device, you may be able to define one or more input events on the device. Some devices do not support input/output at all. Refer to the release notes for device-specific information. ***Devices Capable of Handling One Input Event Only*** If the device is capable of handling one input event only, the button will open the *Add New Event* window (for devices capable of handling one input event only), in which you define the input event, and any e-mail or SMS alerts to be associated with it. If you have already defined an input event on a device capable of handling one input event only, the *Add new event...* button will not be available when the device is selected in the *Defined events* list. However, if you click the plus sign next to the device in the *Defined events* list, and select the defined input event, the *Add new event...* button becomes available for defining timer events (see *Timer Events* in the following). ***Devices Capable of Handling Several Input Events*** If the device is capable of handling more than one input event, the button will open the *Multiple Input Events* window, in which you define which of the device's possible input events should be enabled, and whether any alerts should be associated with enabled input

	events. ***Timer Events*** When you click the plus sign next to the device in the *Defined events* list, and select a defined input event, the *Add new event...* button becomes available for defining timer events: When clicked, the button will open the *New Timer* window, in which you are able to specify the settings for timer events. Timer events are separate events, triggered by the input event under which they are defined. Timer events occur a specified number of seconds or minutes after the input event under which they are defined. Timer events may be used for a wide variety of purposes; the following are examples only: • A camera starts based on an input event, e.g. when a door is opened, a timer event stops the camera after 15 seconds • A camera starts and the lights are switched on based on an input event, e.g. when a door is opened, a timer event stops the camera after one minute, and another timer event switches the lights off after two minutes
Add new output event...	Opens the *Add New Output* window, in which you are able to specify a name for the required output event, which of the device's output ports to use, and how long to keep the output for.
Add VMD Event (Motion Detection)	Lets you add a VMD (Video Motion Detection) event to the device selected in the *Defined Events* list. VMD events are events triggered when NetDVR detects motion on a specific camera, based on the motion detection settings defined in the *Adjust Motion Detection* window. **Note:** In addition to NetDVR's motion detection, some devices also have their own capabilities for detecting motion (configured in the devices' own software; typically by accessing a browser-based configuration interface on the device's IP address). Events based on motion detected *on a device itself* are not VMD Events; they are input events, since they are based on input from the device. VMD events can be used just like regular input events. For example, a PTZ (Pan/Tilt/Zoom) camera could move to a specific preset position when a VMD event occurs. Only one VMD event can be defined per camera. In order to avoid the risk of an excessively high number of VMD events being generated, a VMD event cannot occur more frequently than every five seconds. The *Add VMD Event (Motion Detection)* button works slightly different depending on whether the selected device is a single-camera device or a multi-camera device, such as a video server: • ***Single-camera devices*:** Clicking the *Add VMD Event (Motion Detection)* button will instantly add a VMD event to the selected device, provided a VMD event has not already been defined for the device. • ***Multi-camera devices*:** Clicking the *Add VMD Event (Motion Detection)* button will open a simple dialog in which you select the required camera. This way you are able to define a VMD event for each camera on a multi-camera device.
Edit selected...	Lets you edit the settings for an item selected in the *Defined events* list. For devices capable of handling a single input event only, the button will open the *Edit Event* window (for editing input events).

	For devices capable of handling several input events, the button will open the *Multiple Input Events* window. If the selected item is a timer event, the button will open the *New Timer* window. If the selected item is an output, the button will open the *Edit Output* window.
Remove selected	Lets you remove an event selected in the *Defined events* list. **Note:** The selected event will be removed without further warning.
Advanced...	Opens the *Advanced* window, in which you are able to specify network settings to be used in connection with event handling: which ports to use for FTP, alerts and SMTP input/output events as well as which polling frequency to use on devices requiring polling.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Add New Event* window (for devices capable of handling one input event only) lets you specify the settings for an input event on devices capable of handling one input event only.



The *Add New Event* window (for devices capable of handling one input event only)

Access: You access the *Add New Event* window (for devices capable of handling one input event only) by selecting the required device and clicking the *Add new event...* button in the *I/O Setup* window. Note that this only applies when the selected device is capable of handling a single input event only. Some devices are capable of handling several input events, in which case a different window, the *Multiple Input Events* window, will open when the *Add new event...* button is clicked.

Note: Before you specify input events for a device, verify that sensor operation is recognized by the device. Most devices are capable of showing this in their configuration interfaces, or via CGI script commands. Also check the NetDVR release note to verify that input-controlled operations are supported for the device and firmware used.

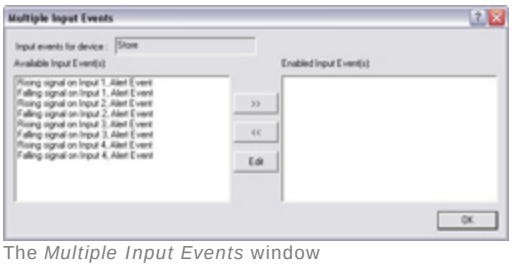
- ### Add New Event Window's Fields

The *Add New Event* window (for devices capable of handling one input event only) contains the following fields:

Field, Check Box	Description
External sensor connected to	Read-only field, displaying the name of the device on which the input event is defined.
Sensor connected through	Lets you select which of the device's input ports the sensor used for the input event is connected to.
Event occurs when input goes	Lets you select whether input event should be triggered when the signal on the input sensor rises or falls: • ***Low***: Trigger input event when the signal on the sensor is falling • ***High***: Trigger input event when the signal on the sensor is rising For exact information about what constitutes a falling and a rising signal respectively, refer to documentation for the sensor and device in question.
External event name	Lets you specify a name for the input event. **Note:** Event names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Send e-mail if this event occurs	Select check box to send an e-mail alert when the input occurs. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Include image from camera	Available only if the *Send e-mail if this event occurs* check box is selected. Select check box to include an image, recorded at the time the input event is triggered, in the e-mail alert, then select the required camera in the list next to the check box.
Send SMS if this event occurs	Select check box to send an SMS alert when the input occurs. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Multiple Input Events* window is used for devices capable of handling several input events. It lets you define which of the device's possible input events should be enabled, and whether any alerts should be associated with enabled input events.



The *Multiple Input Events* window

Note: Before you specify input events for a device, verify that sensor operation is recognized by the device. Most devices are capable of showing this in their configuration interfaces, or via CGI script commands. Also check NetDVR release notes to verify that input and output controlled operations are supported for the device and firmware used.

Access: You access the *Multiple Input Events* window by clicking the *Add new event...* button in the *I/O Setup* window. Note that this only applies when the device selected in the *I/O Setup* window is capable of handling several input events. Some devices are capable of handling a single input event only, in which case a different window, the *Add New Event* window (for devices capable of handling one input event only), will open when the *Add new event...* button is clicked.

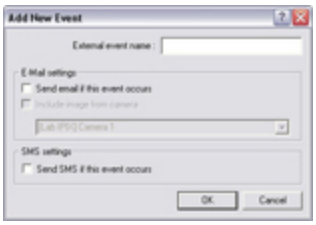
- ### Multiple Input Events Window's Fields and Buttons

  The *Multiple Input Events* window contains the following fields and buttons:

Field	Description
Input events for device	Read-only field, displaying the name of the device on which the input events are defined.
Available Input Event(s)	Lists available input events for the device, typically with an input event for rising and falling signals on each of the device's input ports. For exact information about what constitutes the various input events, refer to documentation for the sensors and device in question. **My list contains event related to motion and/or object detection; what's this?** Some devices have their own capabilities for detecting motion and/or moving/static objects. A motion or object detection-related input event is very likely to be an option from such a device. The settings determining this kind of detection are configured on the device itself; typically by accessing a browser-based configuration interface on the device's IP address. For more information, refer to the documentation for the device in question.
Enabled Input Event(s)	Lists enabled input events for the device. You enable an event by selecting it in the *Available Input Event(s)* list, then clicking the >> button. See description in the following.
>>	You enable an event by selecting it in the *Available Input Event(s)* list, then clicking the >> button to open the *Add New Event* window (for devices capable of handling several input events) in which you specify a name for the input event, and any e-mail or SMS alerts to be associated with it. When you click *OK* in the *Add New Event* window (for devices capable of handling several input events), the selected input event is automatically transferred from *Available Input Event(s)* list to the *Enabled Input Event(s)* list.
<<	Lets you move an input event selected in the *Enabled Input Event(s)* list to the *Available Input Event(s)* list, thus disabling it.
Edit	Lets you edit the settings for an input event selected in the *Enabled Input Event(s)* list.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Add New Event* window (for devices capable of handling several input events) lets you specify the settings for a particular input event on devices capable of handling several input events.



The *Add New Event* window for devices capable of handling several input events

Access: You access the *Add New Event* window (for devices capable of handling several input events) by clicking the >> button in the *Multiple Input Events* window.

Note: Before you specify input events for a device, verify that sensor operation is recognized by the device. Most devices are capable of showing this in their configuration interfaces, or via CGI script commands. Also check NetDVR release notes to verify that input and output controlled operations are supported for the device and firmware used.

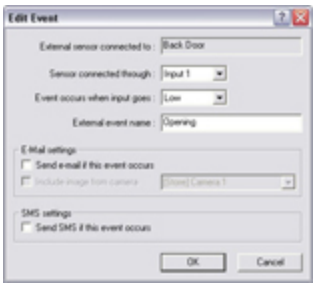
- ### Add New Event Window's Fields

  The *Add New Event* window (for devices capable of handling several input events) contains the following fields:

Field, Check Box	Description
External event name	Lets you specify a name for the particular input event. **Note:** Event names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Send email if this event occurs	Select check box to send an e-mail alert when the input occurs. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Include image from camera	Available only if the *Send e-mail if this event occurs* check box is selected. Select check box to include an image, recorded at the time the input event is triggered, in the e-mail alert, then select the required camera in the list below the check box.
Send SMS if this event occurs	Select check box to send an SMS alert when the input occurs. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Edit Event* window (for editing input events) lets you edit the settings for an existing input event on devices capable of handling one input event only.



The *Edit Event* window (for editing input events)

Access: You access the *Edit Event* window (for editing input events) by selecting the required device and clicking the *Edit selected...* button in the *I/O Setup* window.
Note that this only applies when the selected device is capable of handling a single input event only. Some devices are capable of handling several input events, in which case a different window, the *Multiple Input Events* window, will open when the *Edit selected...* button is clicked.

- ### Edit Event Window's Fields

  The *Edit Event* window (for editing input events) contains the following fields:

Field	Description
External sensor connected to	Read-only field, displaying the name of the device on which the input event is defined.
Sensor connected through	Lets you select which of the device's input ports the sensor used for the input event should be connected to.
Event occurs when input goes	Lets you select whether the input event should be triggered when the signal on the input sensor rises or falls: • ***Low*:** Trigger input event when the signal on the sensor is falling • ***High*:** Trigger input event when the signal on the sensor is rising For exact information about what constitutes a falling and a rising signal respectively, refer to documentation for the sensor and device in question.
External event name	Lets you edit the name of the input event. **Note:** Event names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Send e-mail if this event occurs	Select check box to send an e-mail alert when the input occurs. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Include image from camera	Available only if the *Send e-mail if this event occurs* check box is selected. Select check box to include an image, recorded at the time the input event is triggered, in the e-mail alert, then select the required camera in the list next to the check box.
Send SMS if this event occurs	Select check box to send an SMS alert when the input occurs. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *New Timer* window lets you specify the settings for timer events.

Timer events are separate events, triggered by the input event, VMD event, generic event or event button under which they are defined.

Timer events occur a specified number of seconds or minutes after the event under which they are defined has occurred or the event button under which they have been defined has been clicked.

Timer events may be used for a wide variety of purposes; the following are examples only:

- A camera starts recording based on an input event, e.g. when a door is opened; a timer event stops the recording after 15 seconds
- Lights are switched on and a camera starts recording based on a VMD event, i.e. when motion is detected; a timer event stops the recording after one minute, and another timer event switches the lights off after two minutes

The *New Timer* window

Access: You are able to access the *New Timer* window in three ways:
If dealing with input and VMD events in the *I/O Setup* window: When you click the plus sign (⊞) next to a device in the window's *Defined events* list, and select a defined event, you are able to click the *Add new event...* button to access the *New Timer* window.
If dealing with event buttons in the *Event Buttons* window: When selecting an already specified event button in the *Defined Events* list, you are able to click the *Add new event...* button to access the *New Timer* window.
If dealing with TCP- and/or UDP-based events in the *Generic Events* window: When selecting an already specified event in the *Defined Events* list, you are able to click the *Add new event...* button to access the *New Timer* window.

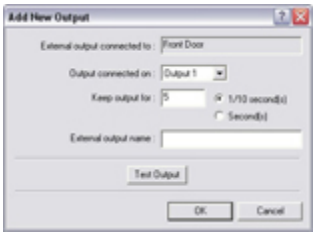
- ### New Timer Window's Fields

  The New Timer window contains the following fields:

Field	Description
Timer event is started by	Read-only field, displaying the name of the event or event button under which the timer event is defined.
Timer event name	Lets you specify a name for the timer event. **Note:** Event names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Timer event occurs after	Lets you specify the amount of time that should pass between the event occurring/event button being clicked and the timer event. Specify the required amount of time in either seconds or minutes. Examples: • The timer event should occur 15 seconds after the event under which it is defined has occurred • The timer event should occur 2 minutes after the event button under which it has been defined has been clicked

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Add New Output* window lets you specify the settings for an output on a device.



The *Add New Output* window

Note: Before you specify output for a device, verify that the output is supported by the device. Most devices are capable of showing this in their configuration interfaces, or via CGI script commands. Also check the NetDVR release note to verify that output is supported for the device and firmware used.

Access: You access the *Add New Output* window by selecting the required device and clicking the *Add new output event...* button in the *I/O Setup* window. If the device does not support output, the button will not be available.

- ### Add New Output Window's Fields

  The *Add New Output* window contains the following fields:

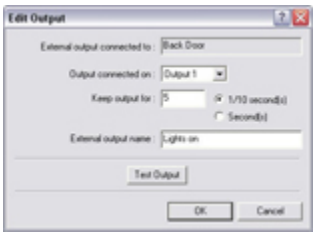
Field	Description
External output connected to	Read-only field, displaying the name of the device on which the output event is defined.
Output connected on	Lets you select which of the device's output ports the output is connected to. Many cameras only have a single output port; in that case simply select *Output 1*.
Keep output for	Lets you specify the amount of time for which the output should be applied. Specify the required amount of time in either 1/10 seconds or seconds. Example: The output should be kept for five tenths of a second. **Note:** Some devices are only able to apply outputs for a relatively short time, for example max. Five seconds. Refer to the documentation for the device in question for exact information.
External output name	Lets you specify a name for the output. The name will appear on the button/list with which users will be able to manually trigger the output. **Note:** Output names must not contain the following characters: < > & ' " \ / : * ? | [ ]

- ### Testing the Defined Output

  When you have defined settings for the output in question, you are able to test the output by clicking the *Test Output* button.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Edit Output* window lets you specify the settings for an output on a device.



The *Edit Output* window

Access: You access the *Edit Output* window by selecting the required output in the *I/O Setup* window, then clicking the *Edit selected...* button.

- ### Edit Output Window's Fields

  The *Edit Output* window contains the following fields:

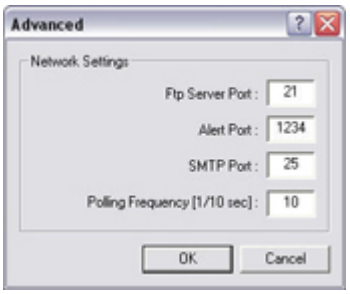
Field	Description
External output connected to	Read-only field, displaying the name of the device on which the output event is defined.
Output connected on	Lets you edit which of the device's output ports the output is connected to.
Keep output for	Lets you edit the amount of time for which the output should be applied. Specify the required amount of time in either 1/10 seconds or seconds. Example: The output should be kept for five tenths of a second. **Note:** Some devices are only able to apply outputs for a relatively short time, for example max. five seconds. Refer to the documentation for the device in question for exact information.
External output name	Lets you edit the name of the output. **Note:** Output names must not contain the following characters: < > & ' " \ / : * ? | [ ]

- ### Testing the Defined Output

  When you have defined settings for the output in question, you are able to test the output by clicking the *Test Output* button.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Advanced* window lets you specify network settings to be used in connection with event handling.



The *Advanced* window

Access: You access the *Advanced* window by clicking the *Advanced...* button in the *I/O Setup* window.

- ### Advanced Window's Fields

  The *Advanced* window contains the following fields:

Field	Description
Ftp Server Port	Lets you specify port number to use for sending event information from the device to the surveillance system via FTP. Default port is port 21.
Alert Port	Lets you specify port number to use for handling event-based alerts, including generic events. Default port is port 1234.
SMTP Port	Lets you specify port number to use for sending event information from the device to the surveillance system via SMTP. Default port is port 25.
Polling Frequency [1/10 sec]	For a small number of devices, primarily I/O devices (see Using Dedicated I/O Devices), it is necessary for the surveillance system to regularly check the state of the devices' input ports in order to detect whether input has been received. Such state checking at regular intervals is called *polling*. The *Polling Frequency* field lets you specify the interval between state checks. Interval is specified in tenths of a second. Default value is 10 tenths of a second (i.e. one second). For I/O devices it is highly recommended that the polling frequency is set to the lowest possible value (one tenth of a second between state checks). For information about which devices require polling, see the release note.

Event Buttons

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Event buttons are configurable buttons allowing users to manually trigger events from the *Monitor application* (only available if the recording server has been installed as an application rather than a service) and *NetGuard EVS*. In the *NetGuard EVS*, event buttons are actually not buttons; instead users manually trigger events by selecting them from a list.

You are able to configure event buttons to suit the exact needs of your organization. Your main entry point for configuring event buttons is the *Administrator* window: Clicking the *Administrator* window's *Event Buttons...* button will open the *Event Buttons* window, in which you specify each individual event button.

Event buttons can be used for a wide variety of purposes, for example:

- As start and stop events for use in the *Camera/Alert Scheduler* window. For example, you can make a camera start or stop transferring images to the surveillance system when an event button is clicked in the *Monitor*.
- As start and stop events for use in the *Camera Settings for [Device Name] [Camera Name]* window. For example, you can make a camera use a higher frame rate when an event button is clicked in the *Monitor*, or you can use an event button for manually triggering PTZ preset positions on event.
- For triggering outputs. Particular outputs can be associated with the clicking of an event button; you do this in the *I/O Control* window.
- For triggering event-based e-mail and/or SMS alerts.
- In combinations. For example, the clicking of an event button could make a camera start transferring images to the surveillance system while two outputs are triggered and an e-mail alert is sent to relevant people.

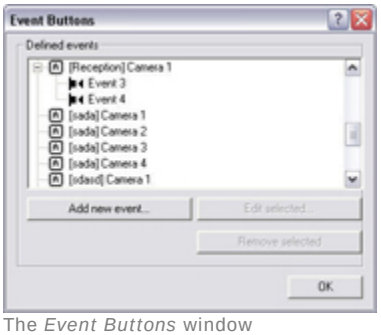
Event buttons can be global (available for all cameras included in the *Monitor*) or tied to a particular camera (only available when the camera is selected in the Monitor).

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Event Buttons* window lets you specify buttons for manually triggering events-controlled activity.

When specified, event buttons become available in the *Monitor* application and *NetGuard EVS* (in the *NetGuard EVS*, event buttons are actually not buttons; instead users manually trigger events by selecting them from a list).

Event buttons can be global (available for all cameras in the *Monitor*) or tied to a particular camera (only available when the camera is selected in the *Monitor).*



The *Event Buttons* window

Access: You access the *Event Buttons* window by clicking the *Event Buttons...* button in the *Administrator* window.

- ## Defined Events List

The *Event Buttons* window features a list of specified event buttons. When event buttons have been defined, you are able to expand elements in the list (by clicking ⊞) to get an overview of all defined event buttons; global event buttons as well as event buttons specified for individual cameras.

Example:

Expanded *Defined Event* list: A global event button with an associated timer event has been specified.
Also, two event buttons have been specified for an individual camera.

- ## Specifying Event Buttons and Timer Events

To specify an event button, first determine whether you want the event button to be available globally or for a particular camera only.

Note: Only eight event buttons can be displayed at a time in the *Monitor* application. When specifying event buttons for individual cameras, bear in mind that global event buttons are displayed for all cameras: If you have already defined, for example, three global event buttons, you will be able to specify a maximum of five event buttons for each individual camera before you reach the maximum of eight displayable event buttons.

In the *NetGuard EVS*, users select manually triggered events from a list rather than by clicking event buttons. The *NetGuard EVS*is thus able to display an unlimited number of events for manual triggering (for simplicity reasons also referred to here as *event buttons*).

Specifying Global Event Buttons
To specify a global event button, select the *Global* entry at the top of the *Defined Events* list, then click the *Add new event...* button.

This will open the *Add New Event* window (for adding event buttons), in which you specify a name for the event button as well as whether the event button should trigger any e-mail or SMS alerts when clicked.

When you click *OK* in the *Add New Event* window (for adding event buttons), your are returned to the *Event Buttons* window, in which your new event button will appear in the *Defined Events* list.

Specifying Camera-Specific Event Buttons
To specify an event button for a specific camera, select the required camera in the *Defined Events* list, then click the *Add new event...* button.

This will open the *Add New Event* window (for adding event buttons), in which you specify a name for the event button as well as whether the event button should trigger any e-mail or SMS alerts when clicked.

When you click *OK* in the *Add New Event* window (for adding event buttons), your are returned to the *Events* window (for specifying event buttons), in which your new event button will appear in the *Defined Events* list.

Specifying Timer Events
When you have specified an event button, you are able to associate timer events with the event button.

Timer events are separate events, occurring a specified number of seconds or minutes after the event button has been clicked. Timer events may be used for a wide variety of purposes; the following are examples only:

- A camera starts when an event button is clicked in the *Monitor* application; a timer event stops the camera after 15 seconds
- A camera starts and the lights are switched on when an event button is clicked in the *Monitor* application; a timer event stops the camera after one minute, and another timer event switches the lights off after two minutes

To define a timer event for an event button, select the required event button in he *Defined Events* list, then click the *Add new event...* button.

When you click the *Add new event...* button while an already specified event button is selected in the *Defined Events* list, the *New Timer* window opens, allowing you to specify the required timer event.

Tip: You may specify several timer events under a single event button. However, you cannot use a timer event under another timer event.

- ### Editing Event Buttons and Timer Events

To edit an event button, or a timer event specified under an event button, select the required event button or timer event in the *Defined Events* list, then click the *Edit selected...* button.

If you have selected an event button, clicking the *Edit selected...* button will open the *Edit Event* window (for editing event buttons).

If you have selected a timer event, clicking the *Edit selected...* button will open the *New Timer* window.

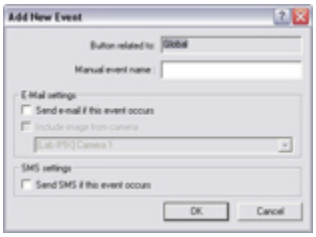
- ### Associating Event Buttons with External Outputs

As is the case with input events (see *External Input & Output*), you are able to associate an event button with specific external outputs. This way, external output, for example the sounding of a siren, can be triggered automatically when an event button is clicked.

Like with input, VMD and generic events, the association between event buttons and outputs is made in the *I/O Control* window.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Add New Event* window (for adding event buttons) lets you specify the settings for an event button.



The *Add New Event* window (for specifying event buttons)

Access: You access the *Add New Event* window (for adding event buttons) from the *Event Buttons* window: Select an entry (either *global* or for a specific camera) in the *Defined Events* list, then click the *Add new event...* button.

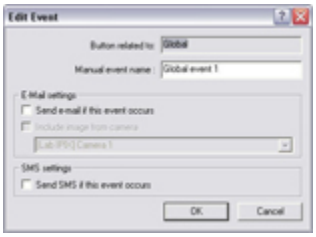
- ### Add New Event Window's Fields

The *Add New Event* window (for adding event buttons) contains the following fields:

Field	Description
Button related to	Read-only field, displaying the name of the camera for which the event will be specified. If the field displays *Global*, the event button will be a global event button (available for all cameras).
Manual event name	Lets you specify a name for the event button. **Note:** Event button names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Send e-mail if this event occurs	Select check box to send an e-mail alert when the event button is clicked. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Include image from camera	Available only if the *Send e-mail if this event occurs* check box is selected. Select check box to include an image, recorded at the time the event button is clicked, in the e-mail alert, then select the required camera in the list below the check box.
Send SMS if this event occurs	Select check box to send an SMS alert when the event button is clicked. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Edit Event* window (for editing event buttons) lets you edit the settings for an existing event button.



The *Edit Event* window (for editing input events)

Access: You access the *Edit Event* window (for editing event buttons) from the *Event Buttons* window, by first selecting the required event button in the *Defined Events* list, then clicking the *Edit selected...* button.

- ### Edit Event Window's Fields

The *Edit Event* window (for editing event buttons) contains the following fields:

Field	Description
Button related to	Read-only field, displaying the name of the camera for which the event button has been specified. If the field displays *Global*, the event button is a global event button (available for all cameras).
Manual event name	Lets you edit the name of the event button. **Note:** Event button names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Send e-mail if this event occurs	Select check box to send an e-mail alert when the event button is clicked. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Include image from camera	Available only if the *Send e-mail if this event occurs* check box is selected. Select check box to include an image, recorded at the time the event button is clicked, in the e-mail alert, then select the required camera in the list below the check box.
Send SMS if this event occurs	Select check box to send an SMS alert when the event button is clicked. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

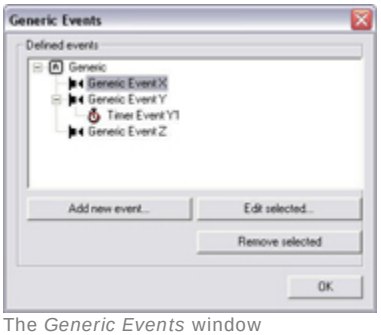
Generic Events

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

NetDVR is able to analyze received TCP and/or UDP data packages, and automatically trigger an event when specified criteria are met. This way you are able to easily integrate your NetDVR surveillance system with a very wide range of external sources, for example access control systems, alarm systems, etc.

Events based on the analysis of received TCP and/or UDP packets are called generic events. NetDVR listens for generic events on the port specified as *Alert Port* in the *Advanced* window (default is port 1234).

The *Generic Events* window lets you manage such events.



The *Generic Events* window

Access: You access the *Generic Events* window by clicking the *Generic Events* button in the *Administrator* window.

- ## Generic Events Window's Events List and Buttons

The *Generic E*vents window features a *Defined events* list, in which defined TCP- and/or UDP-based events are listed, as well a number of buttons used when configuring the events:

Button	Description
Add new event...	Lets you define new events. The type of event you are able to define is determined by what you have selected in the *Defined events* list: • When nothing is selected, or you have selected the list's *Generic* item, clicking the *Add new event...* button will open the *Add New Event* window (for specifying generic events), in which you are able to specify the rules and notification settings for individual TCP- and/or UDP-based events. • When an existing event is selected in the list, clicking the *Add new event...* button will open the *New Timer* window, in which you are able to specify timer events. Timer events are separate events, triggered by the event under which they are defined. Timer events occur a specified number of seconds or minutes after the event under which they are defined has occurred.
Edit selected...	Opens the *Edit Event* window (for editing generic events), in which you are able to edit the settings for an existing event selected in the *Defined events* list.
Remove selected	Lets you remove an existing event selected in the *Defined events* list. **Note:** The selected event will be removed without further warning.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Add New Event* window (for specifying generic events) lets you specify the settings for an event based on input from external sources using the TCP and UDP protocols: You are able to specify the criteria according to which NetDVR should analyze received TCP and/or UDP data packages, and whether any notifications should be triggered when the event occurs.

Tip: TCP and UDP packages used for generic events may contain special characters, such as @, #, +, å, ~, etc. within the text string to be analyzed.

The *Add New Event* window (for specifying generic events)

Access: You access the *Add New Event* window (for specifying generic events) from the *Generic Events* window, by clicking the *Add new event...* button.

The *Add New Event* window (for specifying generic events) is divided into three sections:

- ## General Event Settings Section

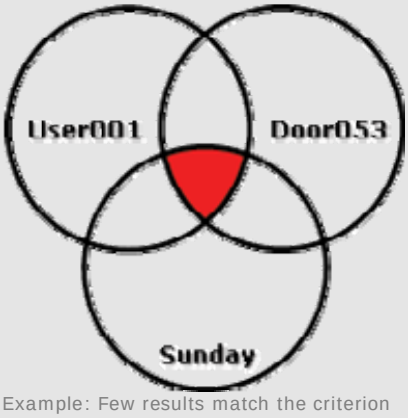
  The *Add New Event* window (for specifying generic events) contains the following fields in the *General Event settings* section:

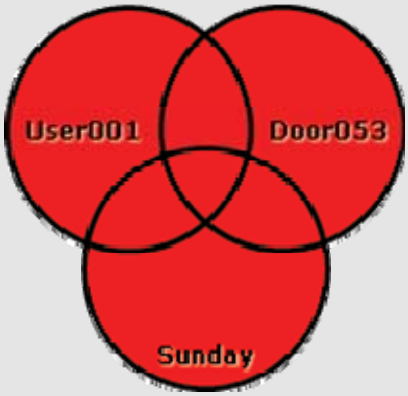
Field	Description
Event Name	Lets you specify a name for the event. Each event must have a unique name. **Note:** Event names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Event Protocol	Lets you select which protocol NetDVR should listen for in order to detect the event: • ***Any*:** Listen for, and analyze, packages using TCP as well as UDP protocol. • ***TCP*:** Listen for, and analyze, packages using TCP protocol only. • ***UDP*:** Listen for, and analyze, packages using UDP protocol only. **Which port is used?**NetDVR listens for generic events on the port specified as *Alert Port* in the *Advanced* window (default is port 1234).
Event rule type	Lets you select how particular NetDVR should be when analyzing received data packages: • ***Match*:** In order for the event to occur, the received package must contain *exactly* the message specified in the *Event rule string* section's *Event message include* field, and nothing else. • ***Search*:** In order for the event to occur, the received package must contain the message specified in the *Event rule string* section's *Event message include* field, but may also have more content. Example: If you have specified that the received package should contain the terms “User001” and “Door053”, the event will be triggered if the received package contains the terms “User001” and “Door053” and “Sunday” as your required terms are contained in the received package.
Event priority	The same data package may be analyzed for different events. The ability to assign a priority to each event lets you manage which event should be triggered if a received package matches the criteria for several events. The priority must be specified as a number between 0 (lowest priority) and 1000 (highest priority). When NetDVR receives a TCP and/or UDP package, analysis of the packet will start with analysis for the event with the highest priority. This way, when a package matches the criteria for several events, only the event with the highest priority will be triggered. In case a package matches the criteria for several events with an identical priority, e.g. two events with a priority of *999*, all events with the priority in question will be triggered.

- ### Event Rule String Section

The *Add New Event* window (for specifying generic events) contains the following fields and buttons in the *Event rule string* section:

Field, Button	Description
Event substring	Lets you specify the individual items for which NetDVR should look out when analyzing data packages. Specify one or more terms, then click the *Add* button to add the specified term(s) to the *Event message include* field, the content of which will be used for the actual analysis. Examples: • Single term: User001 (when added to the *Event message include* field, the term will appear as "User001") • Several terms as one item: User001 Door053 Sunday (when added to the *Event message include* field, the terms will appear as "User001 Door053 Sunday") When you add several terms as one item (appearing as e.g. "User001 Door053 Sunday" in the *Event message include* field), everything between the quotation marks must appear together in the package, in the specified sequence, in order to match your criterion. If the terms must appear in the package, but not necessarily in any exact sequence, add the terms one by one (i.e. so they will appear as "User001" "Door053" "Sunday" in the *Event message include* field).
Event message include	Displays the string which will be used for the actual package analysis. The field is not directly editable. However, you are able to position the cursor inside the field in order to determine where a new item should be included when you click the *Add* button or one of the parenthesis or operator buttons. Likewise, you are able to position the cursor inside the field in order to determine where an item should be removed when clicking the *Remove* button: The item immediately to the left of the cursor will be removed when you click the *Remove* button.
Add	Adds the content of the *Event substring* field to the *Event message include* field, the content of which will be used for the actual analysis. See also the description of the *Event substring* and *Event message includes* fields.
(	Lets you add a start parenthesis character to the *Event message include* field. Parentheses can be used to ensure that related terms are processed together as a logical unit; in other words, they can be used to force a certain processing order in the analysis. Example: ("User001" OR "Door053") AND "Sunday" In the example, the two terms inside the parenthesis will be processed first, then the result will be combined with the last part of the string. In other words, the system will first look for any packages containing either of the terms *User001* or *Door053*, then it will take the results and run through them in order to see which packages also contain the term *Sunday*.

)	Lets you add an end parenthesis character to the *Event message include* field.
AND	Lets you add an AND operator to the *Event message include* field. With an AND operator you specify that the terms on both sides of the AND operator must be present. Example: User001 AND Door053 AND Sunday In the above example, the term *User001* as well as the term *Door053* as well as the term *Sunday* must be present in order for the criterion to be met. It is *not* enough for only one or two of the terms to be present. As a rule of thumb, the more terms you combine with AND, the *fewer* results you will retrieve:  Example: Few results match the criterion *User001 AND Door053 AND Sunday*
OR	Lets you add an OR operator to the *Event message include* field. With an OR operator, you specify that either one or another term must be present. Example: User001 OR Door053 OR Sunday In the above example, the term *User001* or the term *Door053* or the term *Sunday*must be present in order for the criterion to be met. The criterion is satisfied even if only one of the terms is present. As a rule of thumb, the more terms you combine with OR, the *more* results you will retrieve:



Example: Many results match the criterion *User001 OR Door053 OR Sunday*

Remove	Lets you remove the item immediately to the left of a cursor positioned in the *Event message include* field. If no cursor has been positioned in the *Event message include* field, the last item in the field will be removed.

- ### Notification Settings Section

The *Add New Event* window (for specifying generic events) contains the following fields in the *Notification settings* section:

Field	Description
Send Email if this event occurs	Select check box to send an e-mail alert when the event occurs. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Include image from camera	Available only if the Send e-mail if this event occurs check box is selected. Select check box to include an image, recorded at the time the event is triggered, in the e-mail alert, then select the required camera in the list below the check box.
Send SMS if this event occurs	Select check box to send an SMS alert when the input occurs. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

When you have specified a new generic event, click *OK*.
Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Edit Event* window (for editing generic events) lets you edit the settings for an event based on input from external sources using the TCP and UDP protocols: You are able to edit the criteria according to which NetDVR should analyze received TCP and/or UDP data packages, and whether any notifications should be triggered when the event occurs.

Tip: TCP and UDP packages used for generic events may contain special characters, such as @, #, +, å, ~, etc. within the text string to be analyzed.

The *Edit Event* window (for editing generic events)

Access: You access the *Edit Event* window (for specifying generic events) from the *Generic Events* window, by selecting an event from the list, then clicking the *Edit selected...* button.

The *Edit Event* window (for editing generic events) is divided into three sections:

- ## General Event Settings Section

  The *Edit Event* window (for editing generic events) contains the following fields in the *General Event settings* section:

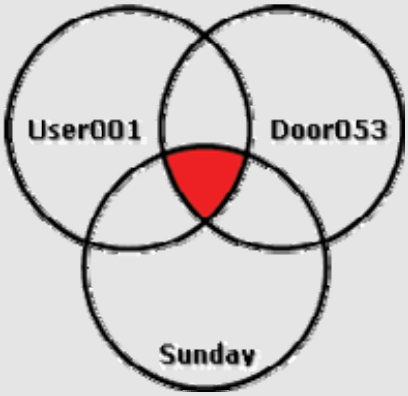
Field	Description
Event Name	Lest you edit the name of the event. Each event must have a unique name. **Note:** Event names must not contain the following characters: < > & ' " \ / : * ? | [ ]
Event Protocol	Lets you select which protocol NetDVR should listen for in order to detect the event: • ***Any*:** Listen for packages using TCP as well as UDP protocol. • ***TCP*:** Listen for packages using TCP protocol only. • ***UDP*:** Listen for packages using UDP protocol only. **Which port is used?** NetDVR listens for generic events on the port specified as *Alert Port* in the *Advanced* window (default is port 1234).
Event rule type	Lets you select how particular NetDVR should be when analyzing received data packages: • ***Match*:** In order for the event to occur, the received package must contain *exactly* the message specified in the *Event rule string* section's *Event message include* field, and nothing else. • ***Search*:** In order for the event to occur, the received package must contain the message specified in the *Event rule string* section's *Event message include* field, but may also have more content. Example: If you have specified that the event message should contain the terms “User001” and “Door053”, the event will be triggered if the message includes the terms “User001” and “Door053” and “Sunday”.

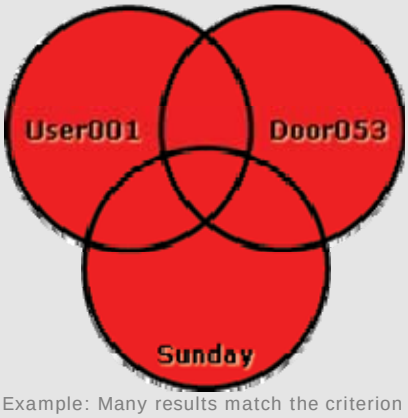
Event priority	The same data package may be analyzed for different events. The ability to assign a priority to each event lets you manage which event should be triggered if a received package matches the criteria for several events. The priority must be specified as a number between 0 (lowest priority) and 1000 (highest priority). When NetDVR receives a TCP and/or UDP package, analysis of the packet will start with analysis for the event with the highest priority. This way, when a package matches the criteria for several events, only the event with the highest priority will be triggered. In case a package matches the criteria for several events with an identical priority, e.g. two events with a priority of *999*, all events with the priority in question will be triggered.

- ### Event Rule String Section

  The *Edit Event* window (for editing generic events) contains the following fields and buttons in the *Event rule string* section:

Field, Button	Description
Event substring	Lets you specify the individual items that NetDVR should look out for when analyzing data packages. Specify one or more terms, then click the *Add* button to add the specified term(s) to the *Event message include* field, the content of which will be used for the actual analysis. Examples: • Single term: User001 (when added to the *Event message include* field, the term will appear as "User001") • Several terms as one item: User001 Door053 Sunday (when added to the *Event message include* field, the terms will appear as "User001 Door053 Sunday") When you add several terms as one item (appearing as e.g. "User001 Door053 Sunday" in the *Event message include* field), everything between the quotation marks must appear together in the package, in the specified sequence. If the terms must appear in the package, but not necessarily in any exact sequence, add the terms one by one (i.e. so they will appear as "User001" "Door053" "Sunday" in the *Event message include* field).
Event message include	Displays the string which will be used for the actual package analysis. The field is not as such editable. However, you are able to position the cursor inside the field in order to determine where a new item should be included when you click the *Add* button or one of the parenthesis or operator buttons. Likewise, you are able to position the cursor inside the field in order to determine where an item should be removed when clicking the *Remove* button: The item immediately to the left of the cursor will be removed when you click the *Remove* button.
Add	Adds the content of the *Event substring* field to the *Event message include* field.

	See also the description of the *Event substring* and *Event message includes* fields.
(	Lets you add a start parenthesis to the *Event message include* field. Parentheses can be used to ensure that semantically related terms are processed together as a logical unit; in other words, they can be used to force a certain processing order in the analysis. Example: ("User001" OR "Door053") AND "Sunday" In the example, the two *OR* terms will be processed first, then the result will be combined with the last part of the string. In other words, the system will first look for any packages containing either of the terms *User001* or *Door053*, then it will take the results and run through them in order to see which packages also contain the term *Sunday*.
)	Lets you add an end parenthesis to the *Event message include* field.
AND	Lets you add an AND operator to the *Event message include* field. With an AND operator you specify that the terms on both sides of the AND operator must be present. Example: User001 AND Door053 AND Sunday In the above example, the term *User001* as well as the term *Door053* as well as the term *Sunday* must be present in order for the criterion to be met. It is *not* enough for only one or two of the terms to be present. As a rule of thumb, the more terms you combine with AND, the *fewer* results you will retrieve:  Example: Few results match the criterion *User001 AND Door053 AND Sunday*.
OR	Lets you add an OR operator to the *Event message include* field. With an OR operator, you specify that either one or another term must be present. Example: User001 OR Door053 OR Sunday In the above example, the term *User001* or the term *Door053* or the term *Sunday*must be present in order for the criterion to be met. The criterion is satisfied even if only one of the terms is present.

	As a rule of thumb, the more terms you combine with OR, the *more* results you will retrieve:  Example: Many results match the criterion *User001 OR Door053 OR Sunday*.
Remove	Lets you remove the item immediately to the left of a cursor positioned in the *Event message include* field. If no cursor has been positioned in the *Event message include* field, the last item in the field will be removed.

- ### Notification Settings Section

  The *Edit Event* window (for editing generic events) contains the following fields in the *Notificationsettings* section:

Field	Description
Send Email if this event occurs	Select check box to send an e-mail alert when the event occurs. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Include image from camera	Available only if the Send e-mail if this event occurs check box is selected. Select check box to include an image, recorded at the time the event is triggered, in the e-mail alert, then select the required camera in the list below the check box.
Send SMS if this event occurs	Select check box to send an SMS alert when the input occurs. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

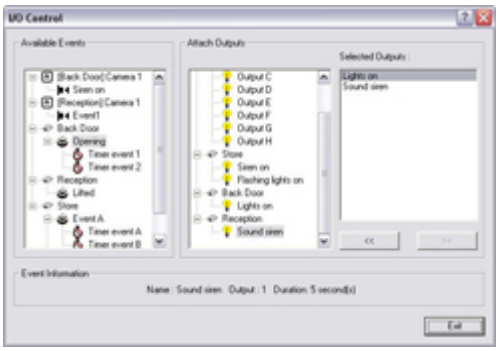
When you have edited the generic event, click *OK*.

I/O Control

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

In the *I/O Control* window you are able associate particular events and event buttons with one or more particular outputs. This way you are able to define that when a selected event occurs, or when a particular event button is clicked, one or more selected outputs will be triggered.

Note: Use of features in the *I/O Control* window requires that events and outputs have been specified (see About Input, Events & Output ...).



The *I/O Control* window

Access: You access the *I/O Control* window from the *Administrator* window, by clicking the *I/O Control...* button.

- ## Associating Events with Particular Outputs

  When associating an event with one or more outputs, you are able to select between **all** outputs defined on the NetDVR system; you are not limited to selecting outputs defined on a particular device.

  To associate a particular event with a particular output, do the following:

  1. Select the required event in the *Available Events* list in the left side of the *I/O Control* window.

     Tip: Events as well as event buttons may be listed.

     Tip: When you select an event or event button in the *Available Events* list, you can view detailed information about the selected event or event button under *Event Information* in the lower part of the window.

  2. Select the required output in the list of available outputs (the list in the middle of the window).

  3. Click the >> button located below the *Selected Outputs* list.

     This will copy the selected output to the *Selected Outputs* list. When the selected event occurs, or when the selected event button is clicked, the selected output will be triggered.

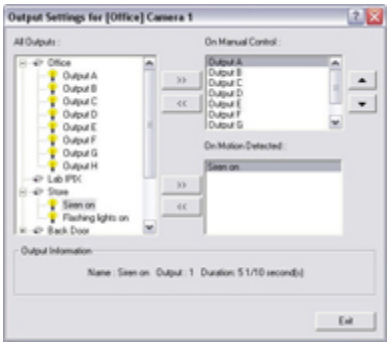
  You are able to associate an event or an event button with more than one output: Simply repeat the process for each required output.

  To remove an output from the *Selected Outputs* list, simply select the required output, and click the << button located below the *Selected Outputs* list.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

In the *Output Settings for [Device Name] [Camera Name]* window you are able to associate a camera with particular external outputs, defined in the *I/O Setup* window, for example the sounding of a siren or the switching on of lights.

The associated outputs can be triggered automatically when motion is detected as well as manually through output buttons available in the *Monitor* application, *NetGuard* and *NetGuard EVS*. in the *Monitor* application and *NetGuard*.



The *Output Settings for [Device Name] [Camera Name]* window

Access: You access the *Output Settings for [Device Name] [Camera Name]* window from the *Camera Settings for [Device Name] [Camera Name]* window, by clicking the *Outputs...* button.

- ## Associating Outputs with Manual Control and Detected Motion

Note: Use of features in the *Output Settings for [Device Name] [Camera Name]* window requires that output has been defined in the *I/O Setup* window.

You have a high degree of flexibility when associating a camera with particular outputs:

- You are able to select between all available outputs, i.e. outputs defined as output events for the camera itself **as well as** outputs defined as output events for other devices on the NetDVR system
- The same output may be used for manual control through an output button **as well as** for automatic triggering when motion is detected

Selecting Output for Manual Control
You are able to specify outputs to be triggered manually through output buttons in the *Monitor* application or from a list in the *NetGuard* or *NetGuard EVS*.

Output buttons will become available in the Monitor when the camera is selected and the Monitor's Output button is clicked. In the *NetGuard* and *NetGuard EVS*, users will be able to trigger outputs by selecting them from a list.

To specify an output for manual triggering in the *Monitor* or *NetGuard*/*NetGuard EVS*, do the following:

1. Select the required output in the *All Outputs* list in the left side of the *Output Settings for [Device Name] [Camera Name]* window.

   Tip: When you select an output in the *All Outputs* list, you can view detailed information about the selected output under *Output Information* in the lower part of the window.

2. Click the >> button located between the *All Outputs* list and the *On Manual Control* list.

   This will copy the selected output to the *On Manual Control* list.

Note: An unlimited number of outputs may be selected this way, but only the top eight outputs in the list will be available as output buttons in the *Monitor*. In the *NetGuard* and *NetGuard EVS* there are no limitations to the number of available outputs.

You are able to determine each output's position among the *Monitor*'s output buttons or the *NetGuard* and *NetGuard EVS* client output list by moving the selected output up or down in the *On Manual Control* list with the *up* and *down* buttons located to the right of the list. The selected output is moved up one step each time you click the *up* button. Likewise, each time you click the *down* button, the selected output is moved down one step.

To remove an output from the *On Manual Control* list, simply select the required output, and click the << button located between the *All Outputs* list and the *On Manual Control* list.

Selecting Output for Use on Motion Detection

You are able to select outputs to be triggered automatically when motion is detected in images from the camera.

Tip: This feature does not require that a VMD (Video Motion Detection) event has been defined for the camera in the *I/O Setup* window.

To select an output for use when motion is detected in images from the camera:

3. Select the required output in the *All Outputs* list in the left side of the *Output Settings for [Device Name] [Camera Name]* window.
   Tip: When you select an output in the *All Outputs* list, you can view detailed information about the selected output under *Output Information* in the lower part of the window.

4. Click the >> button located between the *All Outputs* list and the *On Motion Detected* list. This will copy the selected output to the *On Motion Detected* list.

To remove an output from the *On Motion Detected* list, simply select the required output, and click the << button located between the *All Outputs* list and the *On Motion Detected* list.

How to ...

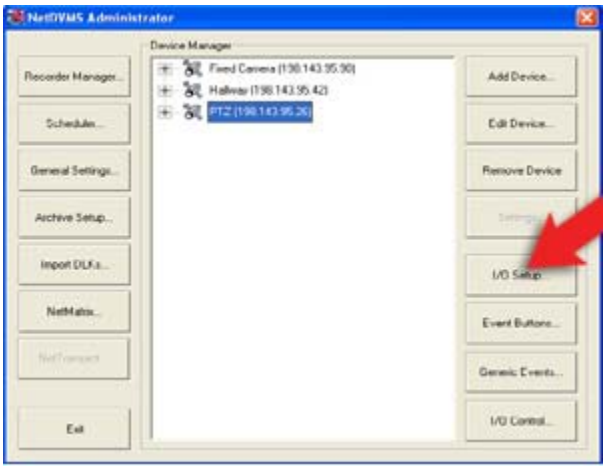
Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Events can be used for automatically triggering actions in NetDVR, such as starting or stopping recording on cameras, triggering e-mail or SMS notifications, making PTZ cameras move to specific preset positions, activating output, etc.

Several types of events exist (see About Input, Events & Output ...). In the following you will see how to define events based on input received from external input units—such as sensors attached to doors, windows, etc.—connected to cameras or other devices on a NetDVR system.

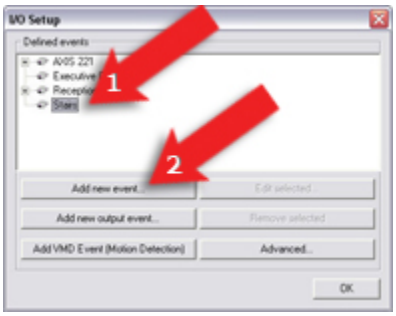
To add an input-based event, do the following:

1. In the *Administrator* window, click the *I/O Setup* button:



This will open the *I/O Setup* window.

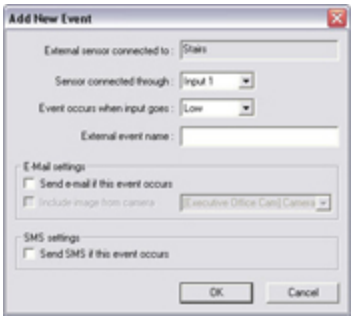
2. In the *I/O Setup* window, first select the camera or other device to which the input unit is connected, then click the *Add new event...* button:



This will open the *Add New Event* window.

Note: Some cameras/devices are capable of handling one input event only; others are capable of handling several input events. The content of the *Add New Event* window varies accordingly. For simplicity reasons, the following steps will describe adding an event on a camera/device capable of handling one input event only.

3. In the *Add New Event* window (for devices capable of handling one input event only), the *External sensor connected to* field will show the name of the selected camera or other device.



Now specify information in the following fields:

- *Sensor connected through*: Select the camera/device input port on which the input unit is connected. Some cameras/devices only have a single input port; in that case simply select *Input 1*.

- *Event occurs when input goes*: Select whether the input event should be triggered when the signal on the input sensor rises (*High*) or falls (*Low*).

- *External event name*: Specify a name for the event. Note that event names must *not* contain the following characters: < > & ' " \ / : * ? | [ ]

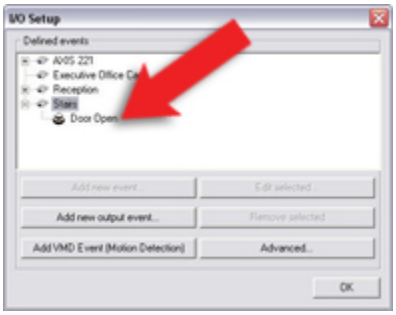
- (Optional) If requiring an e-mail alert to be sent automatically when the event occurs, select the *Send e-mail if this event occurs* check box. Note that in order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window. If requiring an image (recorded at the time of the event) to be included in the e-mail alert, also check the *Include image from camera* check box and select the required camera in the list next to the check box.

- (Optional) If requiring an SMS mobile phone text message alert to be sent automatically when the event occurs, select the *Send SMS if this event occurs* check box. Note that in order to be able to

use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

When ready, click *OK*. This will return you to the *I/O Setup* window.

4. In the *I/O Setup* window, your newly defined event is now listed (you may have to click the expand icon ⊞ in front of the name of the camera or other device to see the listing):



Click *OK* to close the *I/O setup* window and return to the *Administrator* window.

For system administrators defining actions to be triggered by events, the event will now be selectable in line with other events defined on NetDVR.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

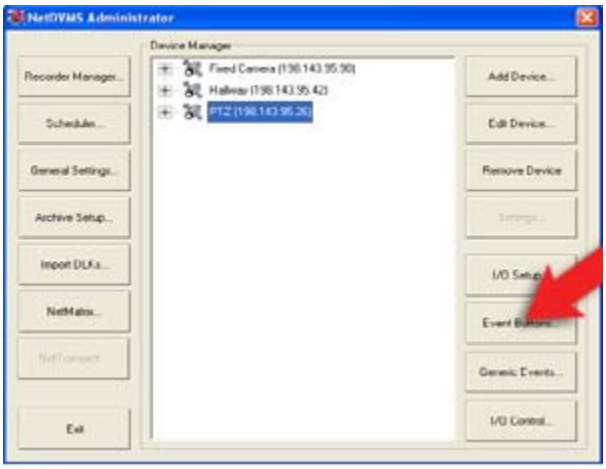
Events can be used for automatically triggering actions in NetDVR, such as starting or stopping recording on cameras, triggering e-mail or SMS notifications, making PTZ cameras move to specific preset positions, activating output, etc. An event may also trigger several actions simultaneously.

Several types of events exist (see About Input, Events & Output ...). In most cases, events occur and actions are triggered without the need for human intervention by NetDVR users: System administrators define the criteria for each event, for example a certain amount of detected motion or input from a specific sensor; when the criteria are met, the system interprets it as an event, and automatically triggers the required actions.

However, you may also want users to be able to manually force an event to occur. For this purpose, NetDVR lets you define event buttons. Event buttons let users manually trigger events from the *Monitor* application and *NetGuard EVS*. In the *NetGuard EVS*, event buttons are actually not buttons; instead users manually trigger events by selecting them from a list. See also About Event Buttons for examples of the many ways in which you can use event buttons.

To add an event button, do the following:

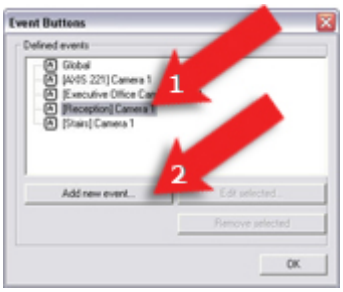
1. In the *Administrator* window, click the *Event Buttons...* button:



This will open the *Event Buttons* window.

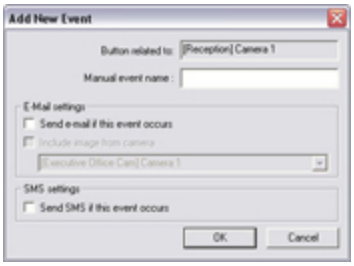
2. In the *Event Buttons* window, first select the camera or other device for which you want the event button to be available, then click the *Add new event...* button.

   Note that you are also able to make the event button globally available (i.e. available to users regardless of which camera/device they have selected in the *Monitor* or *NetGuard EVS*. To make the event button globally available, simply select *Global* (at the top of the list) instead of a particular camera/device.



   This will open the *Add New Event* window (for adding event buttons).

3. In the *Add New Event* window (for adding event buttons), the *Button related to* field will show the name of the selected camera or other device. If you are adding a globally available event button, the field will display *Global*.



   Now specify information in the following fields:

   - *Manual event name*: Specify a name for the event button. Note that event names must *not* contain the following characters: < > & ' " \ / : * ? | [ ]

     Tip: If intending to use the event button in the *Monitor* application, do not use a name consisting of more than approximately 10 characters as the *Monitor*'s event buttons are quite small. **View example ...**

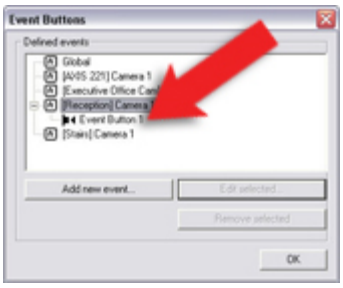
     Event buttons in the *Monitor* can only contain a limited amount of text. In this example, the button is not large enough to contain a very long name. Bear this in mind when naming event buttons.

   - (Optional) If requiring an e-mail alert to be sent automatically when the event occurs, select the *Send e-mail if this event occurs* check box. Note that in order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window. If requiring an image (recorded at the time of the event) to be included in the e-mail alert, also check the *Include image from camera* check box and select the required camera in the list next to the check box.

   - (Optional) If requiring an SMS mobile phone text message alert to be sent automatically when the event occurs, select the *Send SMS if this event occurs* check box. Note that in order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

   When ready, click *OK*. This will return you to the *Event buttons* window.

4. In the *Event Buttons* window, your newly defined event button is now listed (you may have to click the expand icon ⊞ in front of the name of camera or other device to see the listing):



Click *OK* to close the *Event Buttons* window and return to the *Administrator* window.

The defined event button will now be available in the *Monitor* and *NetGuard EVS*, as described in the beginning of this text. Note that individual users' rights may prevent them from accessing specific cameras and/or events in the *NetGuard EVS*; such rights are defined through the *ImageServer Administrator* window.

For system administrators defining actions to be triggered by events, the event button will now be selectable in line with other events defined on NetDVR.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Events can be used for automatically triggering actions in NetDVR, such as starting or stopping recording on cameras, triggering e-mail or SMS notifications, making PTZ cameras move to specific preset positions, activating output, etc. An event may also trigger several actions simultaneously.

Tip: If you are specifically looking for information about how to configure motion detection-triggered activation of an output device only (such as a siren, a strobe light, etc.), see How to Add a Motion-Triggered Output.

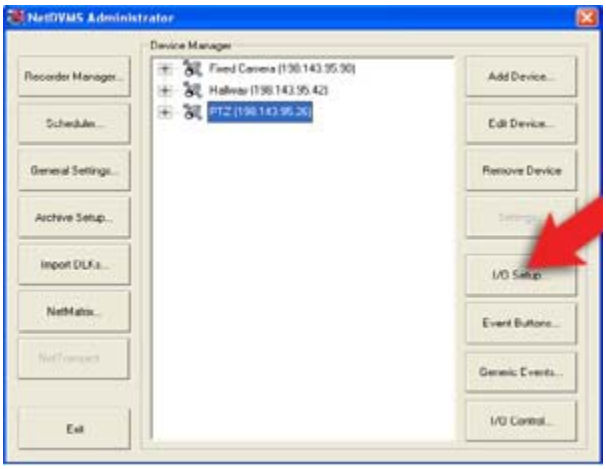
Several types of events exist (see About Input, Events & Output ...). In the following, you will see how to define an event based on NetDVR detecting motion on a particular camera (VMD simply means Video Motion Detection). Once the VMD event is defined, you will be able to select it when further configuring NetDVR.

Note: In addition to NetDVR's motion detection, some devices also have their own capabilities for detecting motion (configured in the devices' own software; typically by accessing a browser-based configuration interface on the device's IP address). Events based on motion detected *on a device itself* are not VMD Events; they are input events, since they are based on input from the device.

Note: Your motion detection settings for the camera in question will entirely determine when motion is detected, and thus when the VMD event will occur. See the description of the *Adjust Motion Detection* window for more information. Also note that in order not to generate an excessively high number of VMD events during periods with lots of motion, a VMD event cannot occur more frequently than every five seconds.

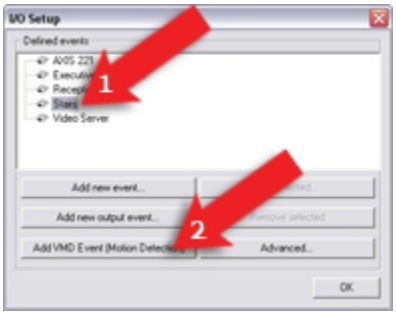
To add a VMD event, do the following:

1. In the *Administrator* window, click the *I/O Setup* button:



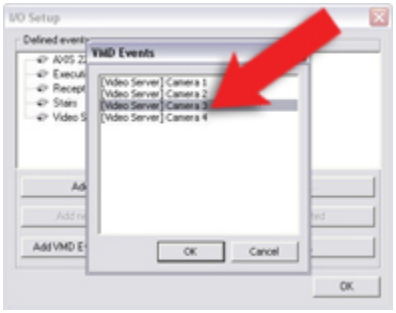
This will open the *I/O Setup* window.

2. In the *I/O Setup* window, first select the device on which motion must be detected in order for the event to occur, then click the *Add VMD Event (Motion Detection)* button:



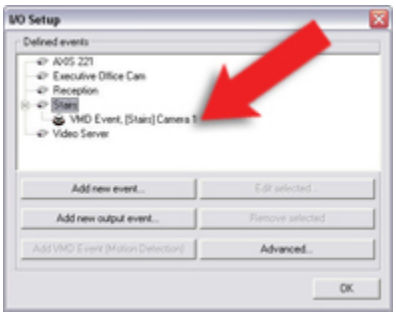
This will automatically add a VMD event to the selected device (unless the selected device is a video server, see below).

- If the selected device is a video server, several cameras may be attached to the device, and a separate dialog will prompt you to select the required camera:



When ready, click *OK*.

3. In the *I/O Setup* window, your newly defined VMD event will now be listed (you may have to click the expand icon ⊞ in front of the name of the device to see the listing):



Click *OK* to close the *I/O Setup* window and return to the *Administrator* window.

For system administrators defining actions to be triggered by events, the VMD event will now be selectable in line with other events defined on NetDVR.

Tip: For video server devices, you are able to define a VMD event for each connected camera; simply repeat above process.

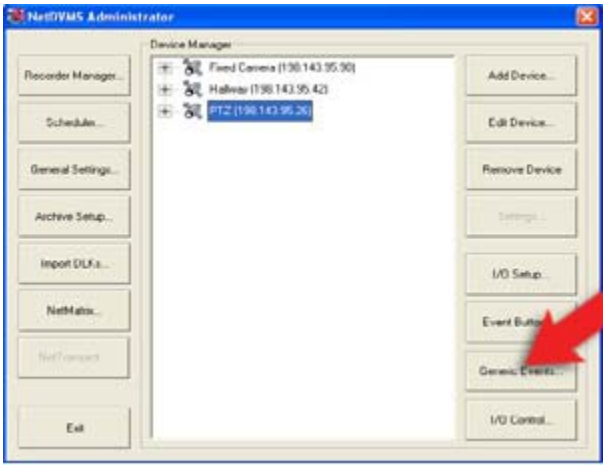
Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

NetDVR is able to analyze received TCP and/or UDP data packages, and automatically trigger an event when specified criteria are met. This way you are able to easily integrate your NetDVR surveillance system with a very wide range of external sources, for example access control systems, alarm systems, etc.

Events based on the analysis of received TCP and/or UDP packets are called generic events. NetDVR listens for generic events on the port specified as *Alert Port* in the *Advanced* window (default is port 1234).

To add a generic event, do the following:

1. In the *Administrator* window, click the *Generic Events...* button:



This will open the *Generic Events* window.

2. In the *Generic Events* window, first select the *Generic* item, then click the *Add new event...* button:

This will open the *Add New Event* window (for specifying generic events).

3. Now specify information in the following fields:

- ***Event name*:** Specify a name for the event. Note that event names must *not* contain the following characters: < > & ' " \ / : * ? | [ ]

- ***Event Protocol*:** Select which protocol NetDVR should listen for: *Any* (i.e. TCP as well as UDP), *TCP* only, or *UDP* only.

  Which port is used? NetDVR listens for generic events on the port specified as *Alert Port* in the *Advanced* window (default is port 1234).

- ***Event rule type*:** Select how particular NetDVR should be when analyzing received data packages: *Match* if the received package must contain only the exact message specified in the *Event message include* field (see description in the following), *Search* if the received package must contain the message specified in the *Event message include* field, but may also have other content.

- ***Event priority*:** Specify a priority between 0 (lowest priority) and 1000 (highest priority) for the event, in case a received data package matches more than one event.

- ***Event rule string*:** Specify what NetDVR should look out for when analyzing the data packages, then click the *Add* button to add the specified term(s) to the *Event message include* field, the content of which is used when analyzing received data packages. You are furthermore able to use processing order parentheses and two different Boolean operators in the *Event message include* field by clicking the buttons to the right of the field.

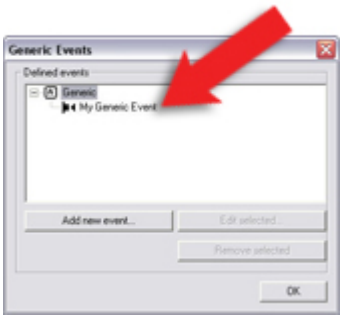
- (Optional) If requiring an e-mail alert to be sent automatically when the event occurs, select the Send Email if this event occurs check box. Note that in order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the E-Mail setup window. If requiring an image

(recorded at the time of the event) to be included in the e-mail alert, also check the Include image from camera check box and select the required camera in the list next to the check box.

- (Optional) If requiring an SMS mobile phone text message alert to be sent automatically when the event occurs, select the *Send SMS if this event occurs* check box. Note that in order to be able to use SMS alerts, the SMS alert feature must have been set up in the *SMS settings* window.

When ready, click *OK*. This will return you to the *Generic Events* window.

4. In the *Generic Events* window, your newly defined event is now listed (you may have to click the expand icon ⊞ in front of the *Generic* item to see the listing):



Click *OK* to close the *Generic Event* window and return to the *Administrator* window.

For system administrators defining actions to be triggered by events, the generic event will now be selectable in line with other events defined on NetDVR.

Tip: See also How to Test a Generic Event.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Once you have added a generic event (see How to Add a Generic Event), a quick and easy way to test your generic event is to first set up an event notification and then use Telnet to send a small amount of data which will trigger the generic event and in turn the event notification.

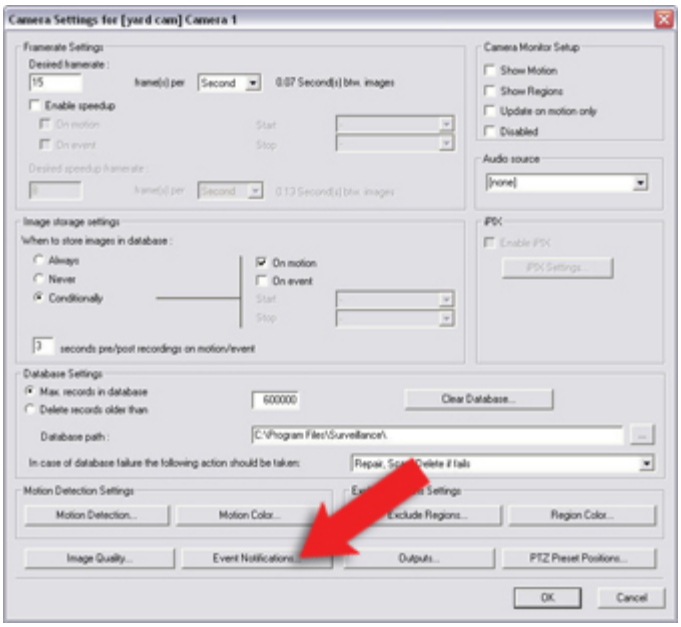
What is Telnet? Telnet is a terminal emulation program used on TCP/IP networks. With Telnet, you can connect to a server from a computer on the network, and execute commands through Telnet as if you were entering them directly on the server. Windows includes a client for use with Telnet.

For this example, we have created a generic event called *Video*. Our generic event simply specifies that if the term *video* appears in a received TCP data package, the generic event should be triggered. Your generic event may be different, but you can still use the principles outlined in the following:

1. In the *Administrator* window, first select a camera from which you are able to view images in the *Monitor* or in a *NetGuard*/*NetGuard EVS*, then click the *Settings* button.

   This will open the *Camera Settings for [Device Name] [Camera Name]* window.

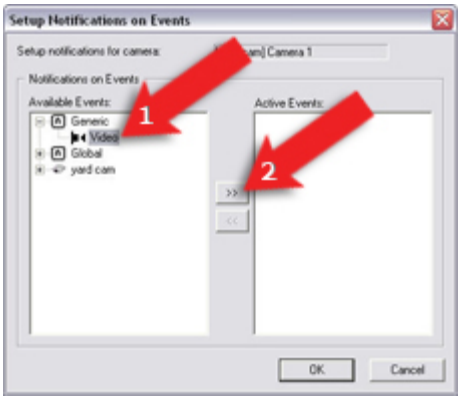
2. In the *Camera Settings for [Device Name] [Camera Name]* window, click the *Event Notifications...* button:



This will open the *Setup Notifications on Events* window.

3. In the *Setup Notifications on Events* window's *Available Events* list, expand the *Generic* item and select your generic event.

   Then click the >> button to move the selected generic event to the *Active Events* list:



Note: Make sure that your generic event is the *only* event appearing in the *Active Events* list while you are performing the test, otherwise you cannot be sure that it is your generic event which triggers the event notification. Once you are done testing, you can move any temporarily removed events back to the *Active Events* list.

4. Click *OK* in the *Setup Notifications on Events window*, click *OK* in the *Camera Settings for [Device Name] [Camera Name]* window, then click the *Exit* button in the *Administrator* window.

5. Make sure NetDVR's recording server is running, either as the *Monitor* application or as the recording server service. Also make sure that the camera for which you configured the event notification is displayed in your *Monitor*, *NetGuard* or *NetGuard EVS*.

6. In Windows' *Start* menu, select *Run...*, and type the following in the *Open* field:

   - **If you are performing the test on the NetDVR server itself:**

     ```
     telnet localhost 1234
     ```

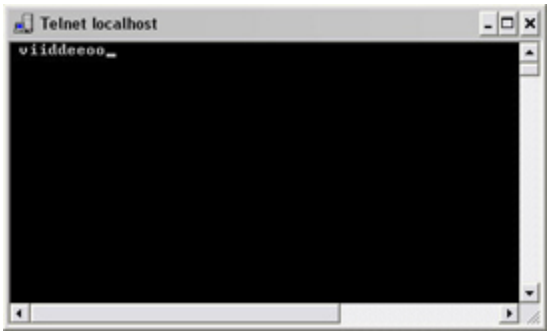
   - **If you are performing the test from a remote computer:** Substitute *localhost* with the IP address of the NetDVR server. Example: If the IP address of the NetDVR server is 123.123.123.123, type:

     ```
     telnet 123.123.123.123 1234
     ```

   Note: In the above examples, the number *1234* indicates the port on which the NetDVR server listens for generic events. Port 1234 is the default port for this purpose, but it is possible to change this by specifying another port number in the *Advanced* window's *Alert Port* field. If the alert port number has been changed on your system, type your system's alert port number instead of *1234*.

   This will open a *Telnet* window.

7. In the *Telnet* window, type the term (so-called *event substring*) required to trigger your generic event. In our case, the required term is *video*:

   While typing in the Telnet window, you may experience so-called echo. This is simply the server repeating some or all of the characters it receives; it will not have any impact as long as you are sure you type the required characters.

8. Close the *Telnet* window by clicking the close button in its top right corner:

9. Go to your *Monitor*, *NetGuard* or *NetGuard EVS*.

   If the yellow event notification indicator lights up for the required camera, your generic event works as intended.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Timer events are separate events, triggered by the input event, VMD event, generic event or event button under which they are defined. Timer events occur a specified number of seconds or minutes after the event under which they are defined has occurred or the event button under which they have been defined has been clicked.

Timer events may be used for a wide variety of purposes; the following are examples only:

- A camera starts recording based on an input event, e.g. when a door is opened; a timer event stops the recording after 15 seconds

- Lights are switched on and a camera starts recording based on a VMD event, i.e. when motion is detected; a timer event stops the recording after one minute, and another timer event switches the lights off after two minutes

To define a timer event, do the following:

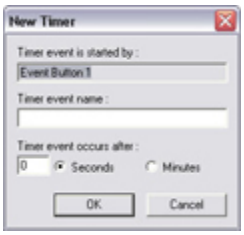
1. A timer event requires that an input event, VMD event, generic event or event button has already been defined. Begin by selecting the required event or event button:

   - **If Adding the Timer Event under an Already Defined Input or VMD Event:** Click the *Administrator* window's *I/O Setup...* button to open the *I/O Setup* window: In the *I/O Setup* window's *Defined events* list, click the plus sign (⊞) next to the required device, select the required input or VMD event, then click the *Add new event...* button to open the *New Timer* window.

   - **If Adding the Timer Event under an Already Defined Event Button:** Click the *Administrator* window's *Event Buttons...* button to open the *Event Buttons* window: In the *Event Buttons* window's *Defined Events* list, select the required event button, then click the *Add new event...* button to open the *New Timer* window.

   - **If Adding the Timer Event under an Already Defined Generic Event:** Click the *Administrator* window's *Generic Events...* button to open the *Generic Events* window: In the *Generic Events* window's *Defined Events* list, select the required generic event, then click the *Add new event...* button to open the *New Timer* window.

2. In the *New Timer* window, the *Timer event is started by* field will show the name of the selected event or event button.



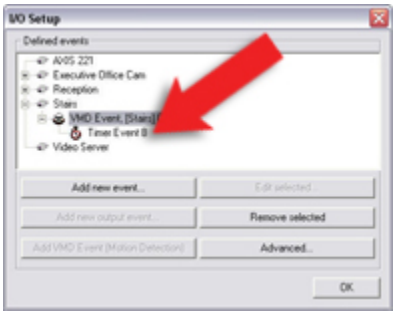
   Now specify information in the following fields:

   - ***Timer event name*:** Specify a name for the timer event. Note that event names must *not* contain the following characters: < > & ' " \ / : * ? | [ ]

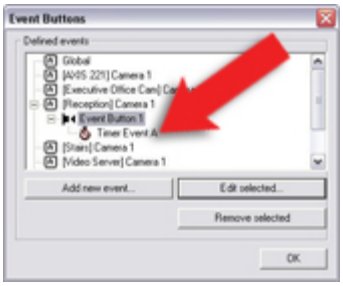
   - ***Timer event occurs after*:** Specify the amount of time that should pass between the event occurring/event button being clicked and the timer event, in either seconds or minutes.

   When ready, click *OK*.

3. In the window from which you opened the *New Timer* window, your newly defined timer event will now be listed:



Timer event (in this example associated with a VMD event) listed in *I/O Setup* window. You may have to click the expand icon ⊞ in front of the name of the required device as well as the required main event to see the timer event.



Timer event (associated with an event button) listed in *Event Buttons* window. You may have to click the expand icon ⊞ in front of the name of the required device as well as the required main event to see the timer event.

Timer event (associated with a generic event) listed in *Generic Events* window. You may have to click the expand icon ⊞ in front of the word *Generic* as well as the required main event to see the timer event.

Click *OK* to return to the *Administrator* window.

For system administrators defining actions to be triggered by events, the timer event will now be selectable in line with other events defined on NetDVR.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

Output (e.g. lights, sirens, etc.) connected to cameras or other devices can be triggered manually when viewing live video in the *Monitor* as well as the *NetGuard* and NetGuard EVS.

- In the *Monitor*, the output can be triggered by first selecting a camera for which manual output has been defined, then clicking the *Monitor*'s *Output* button which provides access to up to eight buttons representing the defined output. Clicking the required button will trigger the output.

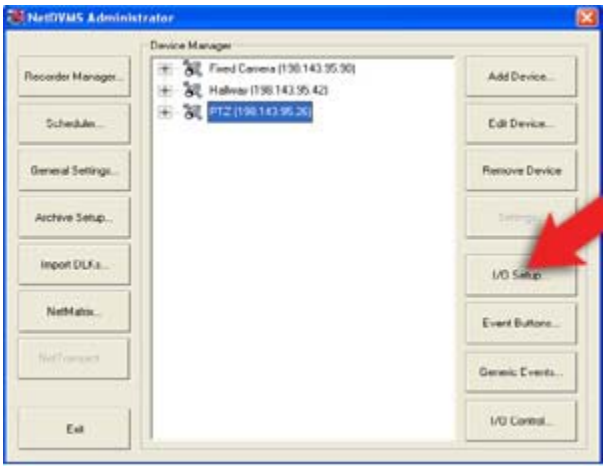
- In the *NetGuard* and *NetGuard EVS*, the output is triggered by selecting the required output from a list on the client's *Live* tab.

The output does not necessarily have to be physically connected to the specific camera from which *Monitor* and *NetGuard /NetGuard EVS* view live video; the output can be connected to any device on your NetDVR system.

To add an output for manual control, do the following:

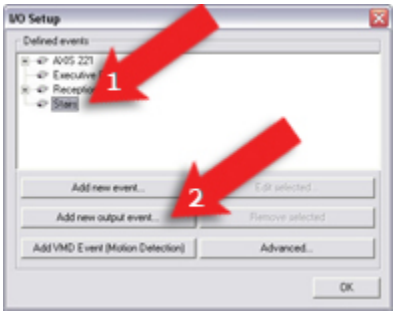
Note: In the following, it is assumed that the required output unit has been connected to the output port on the required camera or other device, but that it has not yet been defined on your NetDVR system. If you have already defined the output on your system, begin at step 5.

1. In the *Administrator* window, click the *I/O Setup* button:



This will open the *I/O Setup* window.

2. In the *I/O Setup* window, first select the camera or other device to which the output unit is connected, then click the *Add new output event...* button:



This will open the *Add New Output* window.

3. In the *Add New Output* window, the *External output connected to* field will show the name of the selected camera or other device.

Now specify information in the following fields:

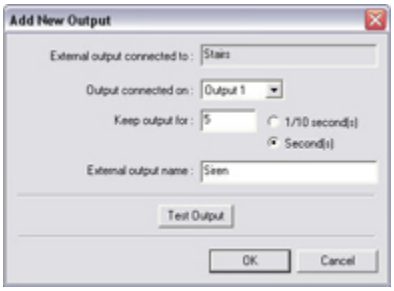
- ***Output connected on*:** Select the camera/device output port on which the output unit is connected. Many cameras/devices only have a single output port; in that case simply select *Output 1*.

- ***Keep output for*:** Specify the amount of time for which the output should be active when triggered, in either 1/10 seconds or seconds.

Note: Some devices are only able to apply outputs for a relatively short time, for example max. five seconds. Refer to the documentation for the device in question for exact information.

- ***External output name*:** Specify a name for the output. The name will appear on the button/list with which users will be able to manually trigger the output. Note that output names must *not* contain the following characters: < > & ' " \ / : * ? | [ ]

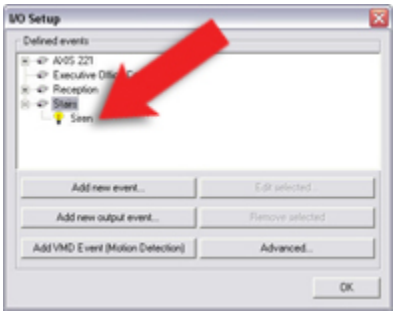
In the following example, we have specified that a siren connected on a camera's Output 1 port should sound for five seconds when triggered:



Tip: You are able to test the output by clicking the *Test Output* button.

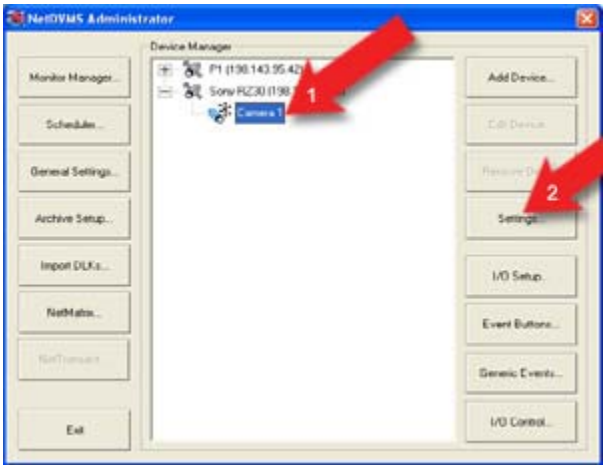
When ready, click *OK*. This will return you to the *I/O Setup* window.

4. In the *I/O Setup* window, your newly defined output is now listed (you may have to click the expand icon ⊞ in front of the name of the camera or other device to see the listing):



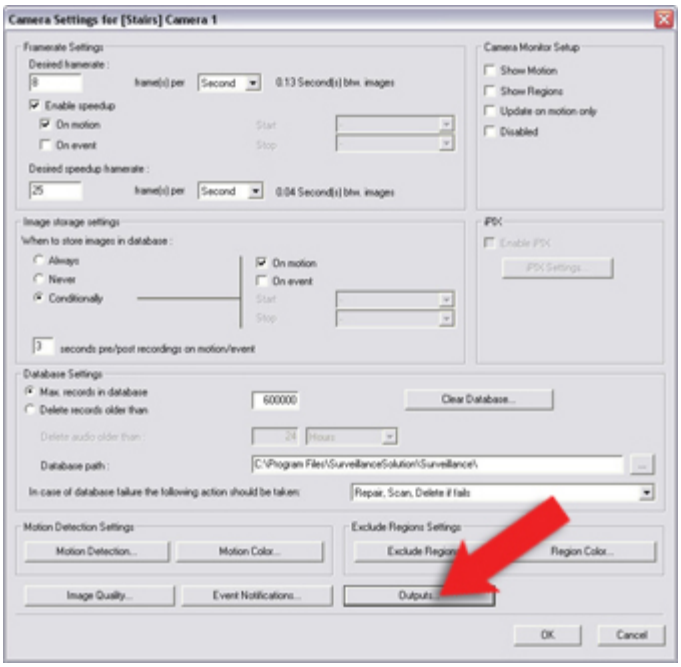
Click *OK* to close the *I/O setup* window and return to the *Administrator* window.

5. In the *Administrator* window, first select the camera for which the output should be available, then click the *Settings...* button:



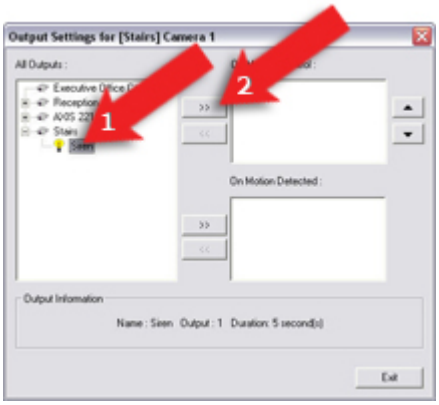
This will open the *Camera Settings for [Device Name] [Camera Name]* window.

6. In the *Camera Settings for [Device Name] [Camera Name]* window, click the *Outputs...* button:



This will open the *Output Settings for [Device Name] [Camera Name]* window.

7. In the *All Outputs* list in the window's left side, select the required output, then click the >> button located between the *All Outputs* list and the *On Manual Control* list:



This will copy the selected output to the *On Manual Control* list, which lists all outputs available for manual control when viewing live video from the camera in question.

Good to know:

- You are not limited to selecting output connected to the camera itself. If output has been defined on other cameras/devices on the NetDVR system, this output will also be selectable in the *All Outputs* list.

- An unlimited number of outputs may be selected this way. However, due to space restrictions in the *Monitor*, only the top eight outputs in the list will be available as output buttons in the *Monitor*. In the *NetGuard* and *NetGuard EVS* there are no such limitations.

- If you have specified several outputs in the *On Manual Control* list, you are able to control the sequence in which the outputs will be displayed in the *Monitor* as well as the *NetGuard* and *NetGuard EVS*. By using the *up* and *down* buttons located to the right of the list, you can change a selected output's position in the sequence.

- The *Output Settings for [Device Name] [Camera Name]* window also lets you select output for automatic triggering on detected motion. This is further described in How to Add a Motion-Triggered Output.

8. When ready, click the *Output Settings for [Device Name] [Camera Name]* window's *Exit* button to return to the *Camera Settings for [Device Name] [Camera Name]* window.

9. In the *Camera Settings for [Device Name] [Camera Name]* window, click *OK* to return to the *Administrator* window.

10. Close the *Administrator*.

    The defined output will now be available in the *Monitor* and *NetGuard /NetGuard EVS*, as described in the beginning of this text.

    Note that individual users' rights may prevent them from accessing specific cameras and/or output in the *NetGuard* and *NetGuard EVS*; such rights are defined through the *ImageServer Administrator* window.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

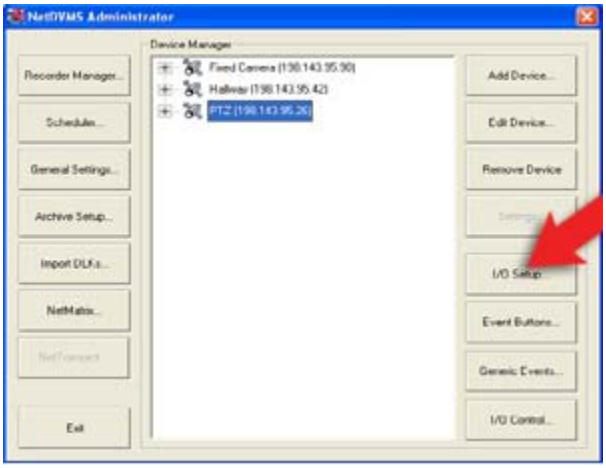
Output (e.g. lights, sirens, etc.) connected to cameras or other devices can be triggered automatically when motion is detected by a camera. The output does not necessarily have to be physically connected to the motion-detecting camera.

To add a motion-triggered output, do the following:

Note: The following describes *one* way of adding a motion-triggered output, namely through the *Output Settings for [Device Name] [Camera Name]* window. Alternatively, motion-triggered output may be based on VMD events or—if a device has its own motion detection capabilities—on input events. Once such VMD or input events have been added, they can be tied to output through the *I/O Control* window.

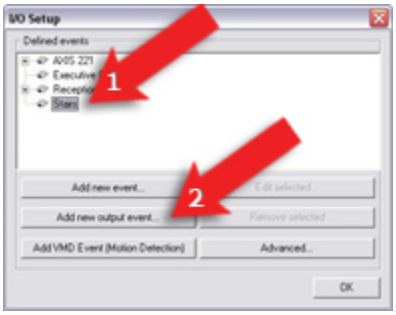
Note: In the following, it is assumed that the required output unit has been connected to the output port on the required camera or other device, but that it has not yet been defined on your NetDVR system. If you have already defined the output on your system, begin at step 5.

1. In the *Administrator* window, click the *I/O Setup* button:



   This will open the *I/O Setup* window.

2. In the *I/O Setup* window, first select the camera or other device to which the output unit is connected, then click the *Add new output event...* button:



This will open the *Add New Output* window.

3. In the *Add New Output* window, the *External output connected to* field will show the name of the selected camera or other device.

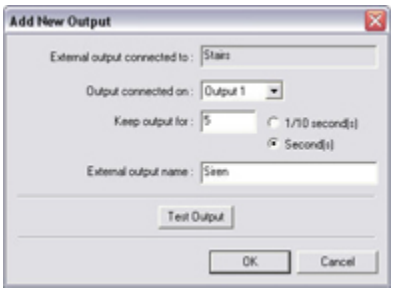
Now specify information in the following fields:

- ***Output connected on*:** Select the camera/device output port on which the output unit is connected. Many cameras/devices only have a single output port; in that case simply select *Output 1*.
- ***Keep output for*:** Specify the amount of time for which the output should be active when triggered, in either 1/10 seconds or seconds.

Note: Some devices are only able to apply outputs for a relatively short time, for example max. five seconds. Refer to the documentation for the device in question for exact information.

- ***External output name*:** Specify a name for the output. The name will appear on the button/list with which users will be able to manually trigger the output. Note that output names must *not* contain the following characters: < > & ' " \ / : * ? | [ ]

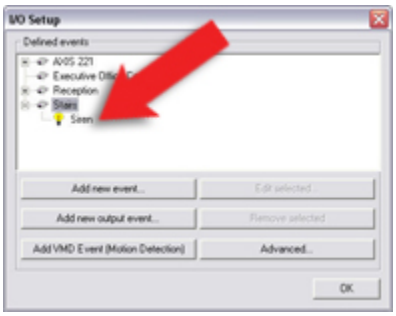
In the following example, we have specified that a siren connected on a camera's Output 1 port should sound for five seconds when triggered:



Tip: You are able to test the output by clicking the *Test Output* button.

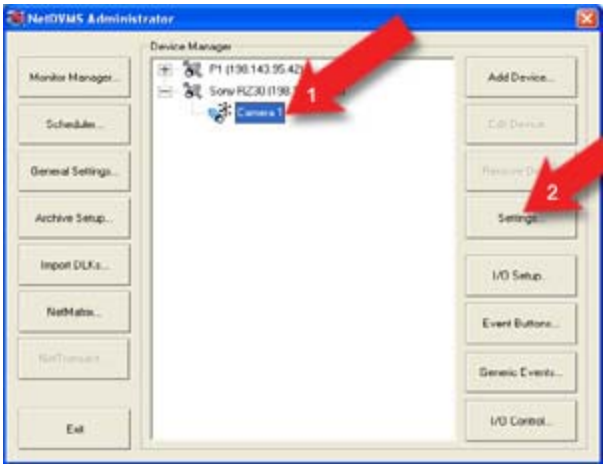
When ready, click *OK*. This will return you to the *I/O Setup* window.

4. In the *I/O Setup* window, your newly defined output is now listed (you may have to click the expand icon ⊞ in front of the name of the camera or other device to see the listing):



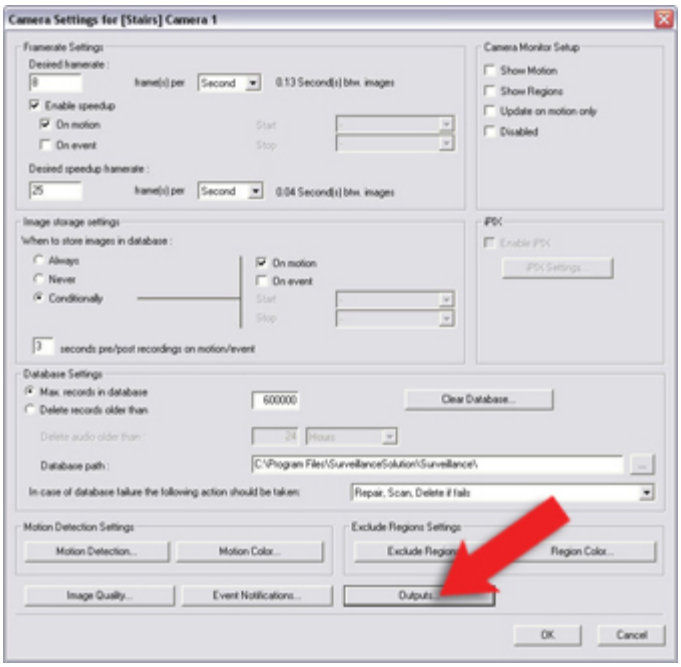
Click *OK* to close the *I/O setup* window and return to the *Administrator* window.

5. In the *Administrator* window, first select the camera for which the output should be available, then click the *Settings...* button:



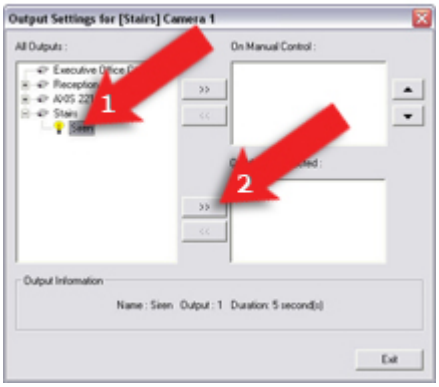
This will open the *Camera Settings for [Device Name] [Camera Name]* window.

6. In the *Camera Settings for [Device Name] [Camera Name]* window, click the *Outputs...* button:



This will open the *Output Settings for [Device Name] [Camera Name]* window.

7. In the *All Outputs* list in the window's left side, select the required output, then click the >> button located between the *All Outputs* list and the *On Motion Detected* list:



This will copy the selected output to the *On Motion Detected* list, which lists all outputs to be automatically triggered when motion is detected by the camera..

Good to know:

- You are not limited to selecting output connected to the camera itself. If output has been defined on other cameras/devices on the NetDVR system, this output will also be selectable in the *All Outputs* list.
- An unlimited number of outputs may be selected this way.
- The *Output Settings for [Device Name] [Camera Name]* window also lets you select output for manual triggering in the *Monitor* as well as *NetGuard* and *NetGuard EVS*. This is further described in How to Add a Manually Controlled Output.

8. When ready, click the *Output Settings for [Device Name] [Camera Name]* window's *Exit* button to return to the *Camera Settings for [Device Name] [Camera Name]* window.

9. In the *Camera Settings for [Device Name] [Camera Name]* window, click *OK* to return to the *Administrator* window.

10. Close the *Administrator*.

    The defined output will now be triggered automatically when motion is detected by the selected camera.

    Note that the automatic output triggering will be controlled entirely by your motion detection settings for the camera in question. See the description of the *Adjust Motion Detection* window for more information.

Archiving

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

With the daily archiving feature in NetDVR, you are able to keep recordings for as long as required.

You enable and configure archiving in the *Archive setup* window. The *Archive setup* window also lets you specify where archives should be stored for each camera.

- ### Benefits of Archiving

  By default, information received from cameras is stored by NetDVR in a database for each camera.

  The database for each camera (see *Camera Settings for [Device Name] [Camera Name] window) is capable of containing a maximum of 600.000 records or 40 GB per day before the oldest records in the database are overwritten.*

  With daily archiving, the amount of records you are able to store is limited only by the available hardware storage capacity. Note, however, that it is only possible to archive up to 40 GB per camera per day.

  By using archiving, you will also be able to back up archived records on backup media of your choice, using your preferred backup software.

- ### How Archiving Works

  For each camera, for which archiving has been specified, the contents of the camera database will be moved to a default archiving directory called Archives. This will happen automatically once every day, at a time specified by you.

  The default archiving directory is located on the computer running the NetDVR software, by default in the directory containing the NetDVR software.

  In the archiving directory, separate sub-directories for storing archives for each camera are automatically created. These sub-directories are named after the MAC address of the device to which the camera is connected.

  Since you are able to keep archives spanning many days of recordings, further sub-directories, named after the archiving date and time, are also automatically created.

  The sub-directories will be named according to the following structure:

  ```
  ...\Archives\CameraMACAddress_VideoServerChannel\DateAndTime
  ```

  Example: With the default archiving folder located under C:\videodata, images from an archiving taking place at 23.15 on 1st June 2005 for a camera attached to channel 2 on a video server device with the MAC address 00408c51e181 would be stored at the following destination:

  ```
  C:\videodata\Archives\00408c51e181_2\2005-06-01-23-15
  ```

If the device to which the camera is attached is not a video server device with several channels, the video server channel indication in the sub-directory named after the device's MAC address will always be *_1*. Example: (e.g. 00408c51e181_1)

Storing Archives at Other Locations than the Default Archiving Directory

You are of course also able to store archives at other locations than locally in the default archiving directory. You may, for example, specify that your archives should be stored on a network drive.

When archiving to other locations than the default archiving directory, NetDVR will first store the archive in the local default archiving directory, then immediately move the archive to the archiving location you have specified.

While this may at first glance seem unnecessary, it greatly speeds up the archiving procedure, which is important because all cameras are stopped during archiving.

Archiving directly to a network drive would mean that archiving time would vary depending on the available bandwidth on the network. First storing the archive locally, then moving it, ensures that the archiving is always performed as fast as possible.

If archiving to a network drive, note the regular camera database **must** still be stored on a local drive, i.e. a drive attached directly to the computer running the NetDVR system.

Archiving Audio

If audio is enabled on a device, audio from the device will also be archived. If the device is a video server with several channels, audio will be archived with the camera on channel 1.

When an audio source is enabled, audio is recorded to the associated camera's database. This will affect the database's capacity for storing video. It is thus important to bear in mind that the maximum limit of the database is likely to be reached earlier if recording audio *and* video than if only recording video. It is thus a very good idea to use archiving if using audio sources.

- ## Storage Capacity Required for Archiving

The storage capacity required for archiving depends entirely on the amount of recordings you plan to archive.

Some organizations want to keep archived recordings from a large number of cameras for several months or years. Other organizations may only want to archive recordings from one or two cameras, and they may want to keep their archives for much shorter periods of time.

Before enabling archiving, you should always consider the storage capacity of the **local** drive containing the default archiving directory to which archives are always moved, even though they may immediately after be moved to an archiving location on a network drive: As a rule of thumb, the capacity of the local drive should be at least twice the size required for storing the databases of all cameras for which archiving has been specified.

When archiving data from a camera to **external** locations, including archiving locations on network drives, NetDVR automatically checks that the space required for data to be archived *plus* 1 GB of free disk space is available at the external location. If not, the external archive location's oldest data from the camera in question will be deleted until there is sufficient free space for the new data to be archived.

In short: When estimating storage capacity required for archiving, consider your organization's needs, then plan for worst case rather than best case scenarios.

- ## Backing Up Archives

Many organizations want to back up recordings from cameras, using tape drives or similar.

Creating such backups based on the content of camera databases is not recommended; it may cause sharing violations or other malfunctions.

Instead, create such backups based on the content of archives. If you have not specified separate archiving locations for separate cameras, you could simply back up the default local archiving directory, *Archives*.

When scheduling a backup, make sure the backup job does not overlap with your specified archiving time.

- ## Viewing Archived Recordings

You view archived recordings in the *Viewer* or *NetGuard EVS*. This way, you are able to use all of *Viewer*'s or *NetGuard EVS* client advanced features (image browsing, smart search, evidence generation, etc.) for archived recordings as well.

Archives Stored Locally or on Network Drives

For archived recordings stored locally or on network drives you simply use the *Viewer*'s or *NetGuard EVS*'s browsing features, for example the timeline browser or the playback controls, for finding and viewing the required recordings; just like you would with recordings stored in a camera's regular database.

Exported Archives

For exported archives, e.g. archives stored on a CD, you must use the *Viewer*: Click the browse button in the *Viewer*'s *Database Information* control panel to browse for the archive you want to view.

Once you have specified the required archive this way, you can use all of the *Viewer*'s browsing features for navigating the recordings in the archive.

Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

The *Archive setup* window lets you enable and configure the archiving feature in NetDVR. It also lets you specify where archives should be stored for each camera.

Access: To access the *Archive setup* window, click the *Archive Setup...* button in the *Administrator* window.

- ## Archive Setup Window's Fields and Buttons

The *Archive setup* window contains the following fields and buttons:

Field, Button	Description
Enable Archiving	Select check box to enable the archiving feature. **Note:** Remember to specify for which cameras the archiving feature should be used; you do this in the *Select cameras for which the archiving function should apply* section.
Delete databases in the backup directory older than	Lets you specify how many days you want to keep archived recordings for. Archived recordings older than the specified number of days will automatically be deleted.
Send email on archive error	Select check box if NetDVR should send an e-mail alert if archiving fails, for example because the disk is full. **Note:** In order to be able to use e-mail alerts, the e-mail alert feature must have been set up in the *E-Mail setup* window.
Send SMS on archive error	Select check box if NetDVR should send an SMS alert if archiving fails, for example because the disk is full. **Note:** In order to be able to use SMS alerts, the SMS alert feature must have been set up

	in the *SMS settings* window.
Daily archiving time	Lists specified archiving time. Archiving will take place every day at the specified time. It is only possible to archive once per day. To add an archiving time to the list, specify the required time in the *Time to add* field, then click the *Add* button. To remove an archiving time from the list, select the archiving time to remove from the list, and click the *Delete* button. **Note:** While archiving takes place, cameras for which archiving applies will briefly stop recording, one after the other. Although the pause is very brief (typically less than a second), it is therefore recommended that you specify an archiving time that is outside periods in which you expect to record important images.
Time to add	Lets you add an archiving time to the *Daily archiving time* list. You specify the required time by selecting the hour, minute and second values respectively, then clicking the field's *up* and *down* buttons to increase or decrease values. **Tip:** You may also simply overwrite selected hour, minute or second values.
Add	Adds the archiving time specified in the *Time to add* field to the *Daily archiving time* list.
Delete	Removes a selected archiving time from the *Daily archiving time* list.
Select cameras for which the archiving function should apply	If the *Archive Setup* window's *Enable Archiving* check box is selected, this section lists cameras for which archiving is possible. The section lists all enabled cameras, i.e. cameras which, depending on their individual settings, may transfer video to the surveillance system. The section also lists the path to the archiving directory for each camera. **Tip:** If a particular camera is not listed, it is highly likely that the camera is disabled. To check if a camera is disabled, look for the camera in the *Administrator* window's *Device Manager* section. A disabled camera will be clearly indicated by an icon, and can be enabled by right-clicking the camera name. **Specifying that Archiving Should Apply for Specific Cameras** To specify that archiving should apply for a specific camera, select the check box next to the name of the required camera. Specifying that archiving should apply for a specific camera Remember that only when you click *OK* is archiving actually enabled for the selected cameras. **Specifying Archiving Locations for Specific Cameras** A default archiving location is specified for each camera. The default archiving directory, called *Archives*, will be located at this location. To specify another location for the archiving directory for a camera, either click the *browse* icon next to the path listing for the required camera and browse to the required location, or click the default path listing to overwrite it.

	  Overwriting an existing path **Tip:** To maximize load sharing and optimize performance, distribute archives across your available storage space, if possible. **Note:** If specifying another archiving location than the default location , the location you specify must exist. You are not able to create new directories as part of the process. If archiving to a network drive, the regular camera database **must** still be stored on a local drive, i.e. a drive attached directly to the computer running the NetDVR system. Archives for the selected camera will be stored in separate subdirectories under the *Archives* directory at the location you specify. The subdirectories will be named according to the following structure: ... \Archives\ [CameraMACAddress_VideoServerChannel] \ [DateAndTime] Example: With the default archiving folder located under C:\videodata, recordings from an archiving taking place at 23.15 on 1st June 2005 for a camera attached to channel 2 on a video server device with the MAC address 00408c51e181 would be stored at the following destination: C:\videodata\Archives\00408c51e181_2\2005-06-01-23-15 If the device to which the camera is attached is not a video server device with several channels, the video server channel indication in the subdirectory named after the device's MAC address will always be *_1*. Example: 00408c51e181_1 **Is audio archived too?** If audio is enabled on a device, audio from the device will also be archived. If the device is a video server with several channels, audio will be archived with the camera on channel 1.
Set all	Selects the check boxes for all cameras listed in the *Select cameras for which the archiving function should apply* section. Clicking the *Set all* button is thus a quick way to specify that archiving should apply for all cameras listed. Remember that only when you click *OK* is archiving actually enabled for the selected cameras.
Clear all	Clears the check boxes for all cameras listed in the *Select cameras for which the archiving function should apply* section. Clicking the *Clear all* button is thus a quick way to specify that archiving should not apply for any of the cameras listed. Remember that only when you click *OK* is archiving actually disabled for the selected cameras.
Set all paths	Copies the selected path listing to all cameras listed in the *Select cameras for which the archiving function should apply* section. If using the same archiving directory for all cameras, this can save you having to manually specify identical paths for each camera. Example: You have specified the path C:\videodata for a camera. To quickly use this path for all cameras, select the path listing and click the *Set all paths* button.

Cameras Not Included in the Monitor Application

Installation-dependent feature: The following information is relevant only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), the following information is not relevant. See Installing the Software for more information about the installation differences.

When the recording server has been installed as the *Monitor* application, it is possible to let some or all of the cameras connected to a NetDVR server run "in the background," i.e. without the cameras being included in the *Monitor* application itself.

For such "background" cameras, the features of the *Monitor* application will not be immediately available (although recorded images from such cameras can still be browsed in the *Monitor* application's *Viewer*). However, "background" cameras can be accessed for viewing of live and recorded images through a *NetGuard* or *NetGuard EVS*.

Apart from the fact that "background" cameras cannot be immediately accessed through the *Monitor*, other settings, such as scheduling, input/events/output, archiving, the ability for cameras to be started on remote live requests (see description of the *General Settings* window's *Advanced* section), etc., fully apply for "background" cameras.

Tip: If you require *Monitor* access to a camera which has been running "in the background," you can simply include the camera in the *Monitor*, provided not all of the *Monitor*'s 64 positions are already in use. You do this in the *Monitor Manager* window.

The use of "background" cameras may be relevant in a number of scenarios, entirely depending on your needs.

One Possible Scenario: Avoiding Using Resources on Displaying Cameras' Images in Monitor

Some organizations use "background" cameras simply to avoid using resources on displaying images from some or all cameras in the *Monitor* application.

Another Possible Scenario: Hiding Cameras' Images from Prying Eyes

In some organizations, the computer running the *Monitor* application may be situated in busy control rooms or reception areas, where lots of people walk in and out. Such organizations may use "background" cameras to avoid displaying images from some or all cameras in the *Monitor* application. When this is the case, the "background" cameras can be accessed by relevant users through a *NetGuard* or *NetGuard EVS*, since access to these clients can be flexibly restricted through the *ImageServer Administrator* window.

Important Guidelines for Using "Background" Cameras

- Since "background" cameras are not displayed in the *Monitor* application, it may occasionally be difficult to determine how many cameras are running. Therefore, when using "background" cameras, always bear in mind that a maximum of 64 cameras at a time can be running on the server—regardless of whether they are running in the *Monitor* application or running through remote activation of "background" cameras.

- For "background" cameras to work, the *Allow cameras to run in the background* check box in the *Advanced* section of the *General Settings* window must be selected.

- For "background" cameras to work, they must be enabled (see description of the *Administrator* window's *Device Manager* section).

- Even if no cameras are included in the *Monitor* application, remember that camera images are only transferred to NetDVR while the recording server, in this case the *Monitor* application, is running. The *Monitor* application must therefore run whenever you want to record images from cameras on your surveillance system. A running *Monitor* is also a prerequisite for viewing live images in the *NetGuard* and *NetGuard EVS*.

Monitor Application

The *Monitor* application is installation-dependent and available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), the features described in the following will not be available. See Installing the Software for more information about the installation differences.

If installed, the *Monitor* application is used for recording and displaying recordings from connected cameras, with optional indications of registered activity.

Depending on user rights and configuration, the *Monitor* may also be used for controlling PTZ (Pan/Tilt/Zoom) cameras, for manually starting and stopping cameras, for manually triggering outputs, etc.

From the *Monitor*, you also have access to the *Viewer*, with which you are able to browse and play back recordings, print images, send images via e-mail, and export entire video and audio sequences in a variety of formats.

The exact look and functionality of the *Monitor* depends on how the *Monitor* has been configured in the *Administrator* application. Ask your surveillance system administrator if in doubt.

IMPORTANT: When the *Monitor* application is installed, recordings are only transferred to NetDVR while the *Monitor* application is running. The *Monitor* application **must** therefore run whenever you want to be able to record images and audio from cameras on your surveillance system. A running *Monitor* is also a prerequisite for viewing live recordings in remote access applications. The *Monitor* application cannot run if the *Administrator* application is already running; close down the *Administrator* application before running the *Monitor* application. Once the *Monitor* application is running, you can run the *Administrator* application as required.

- ## Accessing the Monitor

  Access: You access the Monitor application by double-clicking the *Monitor* desktop shortcut:

  When you start the *Monitor*, all cameras scheduled to be online will start transferring images to NetDVR. Scheduling is handled by the system administrator in the *Administrator* application.

  However, even if a camera is not scheduled to be online, users with sufficient user rights can start a camera (i.e. make it transfer images to NetDVR) from the *Monitor* by using the *Monitor*'s *Manual Mode* feature. See further information in the description of the *Monitor*'s control panel.

  The *Monitor* application opens in full-screen view. This provides you with the best possible view of the camera images displayed.

  The *Monitor* basically consists of two sections: a camera layout section, in which camera images are displayed, and a control panel with buttons for controlling the various features of the *Monitor*.

- ## Monitor's Camera Layout

  The *Monitor*'s camera layout section displays images from each camera specified by the system administrator. Depending on the system administrator's settings in the *Administrator* application, the camera layout may contain images from up to 64 different cameras.

  ### Image Bars

  Each camera, from which images are displayed in the camera layout, is identified by an image bar, located in the top of each camera image.

  The image bar is blue. When you select a particular camera in the camera layout, the image bar of the selected camera image becomes a lighter blue.

Camera image; enlarged detail shows image bar

The image bar displays the name of the camera as well as the name of the device to which the camera is connected. The device name is displayed first, in square brackets, followed by the camera name.

Each image bar also features three colored indicators:

- *Event indicator (the leftmost of the three indicators, solid yellow)*: Lights up when events specified in the *Administrator* application occur. Click anywhere inside the image to reset the event indicator. This indicator may appear black if event indication has not been specified for the camera in question, of if no specified events have occurred. Consult your surveillance system administrator if in doubt.
- *Motion indicator (the indicator in the middle, solid red)*: Lights up when motion is detected in the image. Click anywhere inside the image to reset the motion indicator.
- *Online indicator (the rightmost of the three indicators, blinking green)*: Changes state every time an image is received from the camera.

Hot Spot

If enabled in the *Administrator* application, a hot spot provides you with an enlarged view of images from a selected camera.

When enabled, the hot spot can either appear inside the camera layout, or as a separate floating window:

- If the hot spot is located inside the camera layout, simply click inside an image to select the camera from which you want to view images in the hot spot.
- If the hot spot runs in a separate floating window, you will see a *HotSpot* button in the *Monitor*'s control panel: When this is the case, simply click the *HotSpot* button to open the separate hot spot window. A hot spot in a separate floating window otherwise works just like a hot spot located inside the camera layout.

Tip: The hot spot may also be used for point-and-click operations on some PTZ (Pan/Tilt/Zoom) cameras.

Hot Spot with Carousel

Depending on hot spot configuration in the *Administrator* application, the hot spot may automatically display images from all cameras available in the camera layout; one after the other, with specified intervals. This is known as a carousel.

When this feature has been enabled, a *Carousel* button appears in the *Monitor*'s control panel. To toggle the carousel feature on and off, simply click the *Carousel* button.

Sending Live Images to a NetMatrix Monitor

Provided one or more NetMatrix Monitors have been installed and configured on your surveillance system, you are able to send live images from the *Monitor*'s camera layout for immediate display on particular NetMatrix Monitors. See How to Send Live Images to NetMatrix Monitors for detailed information.

- ### Monitor's Control Panel

The *Monitor*'s control panel section contains a number of buttons for controlling the *Monitor*'s features:

Button	Description
Viewer	Opens the *Viewer*, with which you are able to browse and play back recordings, print images, send images via e-mail, and export entire video and audio sequences in a variety of formats. **Note:** Use of the *Viewer* may require certain user rights. See the description of the *Admin Login* button.
HotSpot	Available only when use of a hot spot in a separate floating window has been set up by the system administrator. Opens the separate hot spot window.
Carousel	Available only when use of the hot spot's carousel feature has been enabled by the system administrator. Click to toggle the carousel feature on and off.
PTZ Menu	Opens the PTZ menu, with which you are able to control PTZ (Pan/Tilt/Zoom) cameras. **Note:** The PTZ menu is only functional when the camera selected in the camera layout is a PTZ camera. Use of the PTZ menu may require certain user rights. See the description of the *Admin Login* button. See a detailed description of the PTZ menu in How to Use the PTZ Menu. **Tip:** To hide the PTZ menu, simply click the *PTZ Menu* button again.
Manual Mode	Lets you toggle between scheduled mode (cameras transferring images to NetDVR according to a schedule defined in the *Administrator* application) and manual mode. With manual mode, you can start a camera (i.e. make it transfer images to NetDVR) from the *Monitor*, even if the camera is not scheduled to be online. When manual mode is selected (*Manual Mode* button depressed), three buttons (the *Stop*/*Start* button, the *Start All* button, and the *Stop All* button) become available, enabling you to start and stop cameras manually. **Note:** When in manual mode, all scheduled camera activity for all cameras, including automatic reconnection and any scheduled PTZ patrolling, is disabled. Use of manual mode may require certain user rights. See the description of the *Admin Login* button.
Stop or **Start**	Available only when the *Manual Mode* button is depressed. Stops the camera selected in the camera layout. When stopped, no images are transferred from the camera to NetDVR.

	Tip: In the camera layout, the selected camera is indicated by a light blue image bar. When the selected camera is stopped, the button becomes a *Start* button. Click the *Start* button to make the camera transfer images to NetDVR again.
Start All	Available only when the *Manual Mode* button is depressed. Starts all cameras, i.e. makes all cameras transfer images to NetDVR.
Stop All	Available only when the *Manual Mode* button is depressed. Stops all cameras. When all cameras are stopped, no images are transferred to NetDVR from any of the cameras.
Output	Displays all available output buttons for the selected camera. Output buttons are used for manually triggering external output, for example for switching on lights, sirens, or similar. When *Output* is selected (*Output* button depressed), any output buttons for the selected camera will be displayed below the *Events* button. Simply click an output button to trigger the associated output. Example of output buttons Up to eight output buttons can be displayed for each camera. Output buttons are defined in the *Administrator* application. Ask your system administrator if in doubt about using output buttons defined for use with cameras in your organization.
Events	Displays all available event buttons for the selected camera. Depending on configuration, event buttons can be used for a wide variety of purposes, including triggering combinations of actions.For example, the clicking of an event button could make a camera use a higher frame rate, trigger two different outputs, and send an e-mail alert to three different recipients. Event buttons can be global (available for all cameras in the *Monitor*) or tied to a particular camera (only available when the camera is selected in the *Monitor).* When *Events* is selected (*Events* button depressed), any global event buttons as well as any event buttons for the selected camera will be displayed below the *Events* button. Simply click an event button to trigger the associated event.

	 Example of event buttons Up to eight event buttons can be displayed for each camera. Event buttons are defined in the *Administrator* application. Ask your system administrator if in doubt about using event buttons defined for use with cameras in your organization.
Quick Browse	Available only when a hot spot is enabled. *Quick Browse* lets you browse images from the selected camera in the hot spot. Use the *back* and *forward* buttons below the *Quick Browse* button to move backwards and forwards. **Tip:** The *Viewer* offers more advanced browsing features. **Note:** Use of the Quick Browse feature may require certain user rights. See the description of the *Admin Login* button.
Mute Audio	Lets you mute audio from cameras on which audio is enabled. Recording is not affected by muting audio in the *Monitor*.
Admin Login	For users without administrator rights, access to certain features in NetDVR may in some organizations have been restricted. Provided you know the administrator password, the *Admin Login* button lets you access such protected features. Clicking the *Admin Login* button opens the *Administrator Login* window, in which you are able to specify the administrator password and log in to NetDVRas an administrator. When you are logged in as an administrator, the *Admin Login* button changes to *Admin Logout*. Clicking the *Admin Logout* button will restore any restrictions.
Administrator	Lets you access the *Administrator* application. The *Administrator* application is used for configuring NetDVR upon installation or whenever configuration adjustments are required, e.g. when adding new cameras to the system. **Note:** Accessing the *Administrator* application from the *Monitor* may require certain user rights. See the description of the *Admin Login* button. When you close the *Administrator* application and return to the *Monitor*, the *Monitor* will be restarted. Certain settings, notably settings for PTZ (Pan/Tilt/Zoom) cameras, are not configurable when the *Administrator* application is accessed from the *Monitor* application. To configure such settings, you must close the *Monitor* application and open the *Administrator* application separately.
Exit	Exits the *Monitor;* closing down the application, and thereby stopping the transfer of

images from cameras to NetDVR.

You will be asked to confirm that you want to close down the application.

Note: Use with caution: Exiting the *Monitor* will stop recordings.
Certain user rights may be required in order to be able to close down the *Monitor*. See the description of the *Admin Login* button.

- ### Monitoring Audio

  If the camera selected in the *Monitor*'s camera layout is recording audio, you are able to listen to live audio through speakers attached to the computer running NetDVR.

  If using a multi-port video server device, audio will always be attached to the first video input on the device.

  To mute live audio, click the *Mute Audio* button in the *Monitor*'s control panel.

  Recording is not affected by muting audio in the *Monitor*.

- ### Running Out of Disk Space! Alert

  In order to warn you of an impending possibility of losing data, the *Monitor* will prominently display the message *Running out of disk space!* if available disk space on the NetDVR server goes below 150 MB plus 20 MB per camera.

  Example: For a system with ten cameras, the alert will show if the available disk space goes below 350 MB (150 MB plus 20 MB for each of the ten cameras).

  Consult your surveillance system administrator if you see this message.

Monitor: How to ...

The *Monitor* application is installation-dependent and available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), the features described in the following will not be available. See Installing the Software for more information about the installation differences.

Clicking the *PTZ Menu* button in the *Monitor* application's control panel gives you access to a menu for controlling a PTZ (Pan/Tilt/Zoom) camera selected in the *Monitor*'s camera layout.

Example of *PTZ Menu* with preset position buttons

Note: The PTZ menu is only functional when the camera selected in the *Monitor* application's camera layout is a PTZ camera. Use of the PTZ Menu may require certain user rights.

- ## PTZ Menu's Navigation Buttons

  The PTZ Menu's navigation buttons let you move the PTZ camera in steps:

  Moves the PTZ camera up and to the left

  Moves the PTZ camera up

  Moves the PTZ camera up and to the right

  Moves the PTZ camera to the left

  Moves the PTZ camera to its home position

  Moves the PTZ camera to the right

  Moves the PTZ camera down and to the left

  Moves the PTZ camera down

  Moves the PTZ camera down and to the right

- ## PTZ Menu's Zoom Buttons and Slider

  With the *PTZ Menu*'s zoom buttons you are able to control the zoom level of the PTZ camera:

  Zoom out (one zoom level per click)

  Zoom in (one zoom level per click)

  As an alternative to using the zoom buttons, use the slider, located below the two zoom buttons, to control the zoom level. Note that the slider can be used only with absolute positioning PTZ cameras only.

- ## PTZ Menu's Preset Position Buttons

  If preset positions have been defined in the *Administrator* application, you are able to move the PTZ camera to the stored preset positions by clicking the preset position buttons displayed in the lower part of the PTZ menu.

  Preset position buttons are grouped into five preset banks (A-E) with up to five preset position buttons (1-5) in each.

  To use preset positions, first click a preset bank button (A-E) to display the preset position buttons in the required bank, then click the required preset position button (1-5) to move the PTZ camera to the required preset position.

  Tip: You may use the A-E and 1-5 keys on your keyboard to move the PTZ camera to preset positions.

- ## Point-and-Click PTZ Control

  Point-and-click control is supported for absolute positioning PTZ cameras as well as some relative positioning PTZ cameras, when a hot spot and the PTZ Menu are enabled.

If the mouse pointer changes to crosshairs when positioned in the hot spot, you are able to control the PTZ camera by clicking in the hot spot.

Crosshairs

The PTZ camera will center on the point you click. If you click and hold down the left mouse button, then move the mouse up or down, you will get access to a zoom slider.

For some cameras, crosshairs surrounded by a square may be displayed. When this is the case, you are able to zoom in on an area by dragging a square around the required area in the hot spot. For such cameras, zoom level is controlled by holding down the SHIFT key on your keyboard while moving the mouse up or down; this will display a zoom level slider inside the hot spot.

- ### PTZ Patrolling and PTZ on Event

PTZ cameras may be set up to move automatically, either according to a scheme (PTZ patrolling) or when particular events occur (PTZ On Event). This is configured in the *Administrator* application.

- With PTZ patrolling, the PTZ camera will automatically move between preset positions.
- With PTZ On Event, the PTZ camera will automatically move to a particular preset position when a particular event occurs. For example, the PTZ camera may move to a preset position covering a door area when a door is opened.

If PTZ patrolling is enabled for the selected PTZ camera, you can pause PTZ patrolling for the camera by clicking the PTZ Menu's *Pause Patrol* button. The button is only available for PTZ cameras for which PTZ patrolling has been enabled. Note that pausing applies for the selected camera; other PTZ cameras may still patrol. Depending on configuration, the pause may automatically time out after a while.

Note: PTZ patrolling and PTZ On Event is stopped for all cameras as long as *Manual Mode* is used to allow cameras to be controlled manually.

Viewer

The *Viewer* lets you browse and play back recordings from cameras defined by the surveillance system administrator. The *Viewer* also lets you print images, send images via e-mail, and export entire video and audio sequences in a variety of formats.

Note: Certain user rights may be required in order to use the *Viewer*; ask your surveillance system administrator if in doubt.

Access: You access the *Viewer* from the *Monitor* application, by clicking the *Viewer* button.

- ## The Viewer's Toolbar

The *Viewer*'s toolbar lets you quickly switch between the *Viewer*'s different features. Icons in the toolbar server as shortcuts to the features available from the *File* and *Tools* menus in the *Viewer*'s menu bar.

When you select a feature in the toolbar, settings for the feature typically become available in the *Viewer*'s control panel, located in the lower part of the window, below the camera layout.

Depending on your rights, not all of the following toolbar icons may be available to you.

	***Settings*:** Opens the *Viewer*'s *Settings* control panel, in which you are able to specify settings for the camera layout, and specify the time span for use in the timeline.
	***Single View*:** Switches to a single, enlarged view of images from the camera selected in the camera layout. **Tip:** You may also simply double-click a camera in the camera layout to switch between single view and multi view.
	***Multi View*:** Switches to multi-view, displaying all cameras in the selected camera layout view. **Tip:** You may also simply double-click a camera in the camera layout to switch between single view and multi view.
	***Database Information*:** Opens the *Database Information* control panel, in which you select the cameras you want displayed in the camera layout.
	***Motion View*:** Opens the *Motion View* control panel, in which you are able to view a graph displaying sequences with motion. The graph is draggable, allowing you to browse the sequences.
	***Alarm Overview*:** Opens the *Alarm Overview* control panel, in which you are able to view a list of generated motion and event alarms. By clicking alarms in the list, you are able to browse recordings from around the time at which the alarms were generated.
	***Image Controls*:** Opens the *Image Controls* control panel, in which you have access to digital zoom and interlacing settings.
	***Export*:** Opens the *Export* control panel, with which you are able to export entire video and audio sequences in different formats.
	***Print*:** Opens the *Print* control panel, from which you are able to print images from the camera selected in the camera layout.
	***Smart Search*:** Opens the *Smart Search* control panel, in which you are able to search for motion in one or more selected areas of the view from a particular camera.
	***Send E-mail Report*:** Opens the *Send E-mail Report* control panel, from which you are able to send evidence via e-mail.
	***Help*:** Lets you view the built-in help. Alternatively, press your keyboard's F1 button to open the help system.

- ## Setting Up the Viewer's Camera Layout

The camera layout is the area of the *Viewer* in which you view images. The camera layout section may display images from up to 16 different cameras at a time.

You can configure the camera layout to suit your exact needs: First specify the camera layout's grid size (i.e. how many camera slots you want the camera layout to contain), then specify which camera to use in each camera slot.

Selecting Grid Size

To specify how many camera slots you want in the camera layout, do the following:

1. Click the *Settings* icon in the *Viewer*'s toolbar.

   Settings icon

   This will open the *Settings* control panel.

2. In the *Settings* control panel's *Layout* list, select the required camera layout grid: 1×1, 2×2, 3×3 or 4×4.

   With a 4×4 grid, you will be able to display images from 16 cameras simultaneously in the camera layout.

3. Assign cameras to the camera layout's camera slots, as described in the following.

Assigning Cameras

Having specified the required grid size for the camera layout, assign cameras to the camera layout's camera slots the following way:

4. Click the *Database Information* icon in the *Viewer*'s toolbar.

   This will open the *Database Information* control panel.

2. Select a camera slot in the camera layout by clicking the required slot.

3. In the *Database Information* control panel's *Video Feed*, select the camera you want to assign to the selected slot.

   An image from the selected camera will show up in the selected slot (unless the selected time happens to be before the first recorded image from the camera).

   Tip: Your cameras may not all transfer images in a size that exactly matches the size of the camera layout's slots. This may result in black bars around images from some cameras when displayed in the camera layout. If you want to adjust the images from all cameras to fit the camera layout's camera slots, select the *Stretch Images To Fit* check box in the *Settings* control panel. This may distort some images slightly, but will help you avoid any black bars around images.

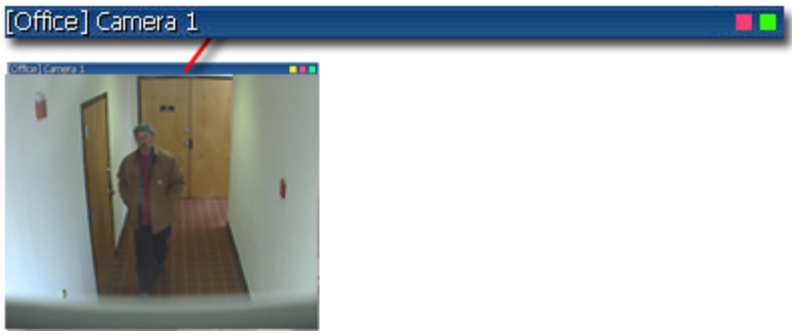
4. If audio is enabled, you may also select an audio source from the *Audio Feed* list, in which case recordings from the selected audio source will be coupled with recordings from the selected camera.

5. Repeat for all cameras you want displayed in the camera layout.

Image Bars

Each camera slot in the camera layout is identified by an image bar, located in the top of each camera slot.

The image bar is blue. When you select a particular camera in the camera layout, the image bar of the selected camera image becomes a lighter blue.



Camera slot; enlarged detail shows image bar

The image bar displays the name of the camera as well as the name of the device to which the camera is connected. The device name is displayed first, in square brackets, followed by the camera name.

Each image bar also features two colored indicators:

- *Motion indicator (the left indicator, red)*: Lights up during periods of motion.
- *Online indicator (the right indicator, green)*: Lights up during periods with recordings.

Storing and Recalling Views

You are able to save particular configurations of the camera layout as so-called views, and switch between them using the *Views* menu in the *Viewer*'s menu bar. For example, you may store one view displaying images from 16 cameras and another view displaying images from eight other cameras. See How to Store and Recall Views.

- ## Browsing Recordings with the Time & Date Selector

Using the time & date selector, it is possible to jump straight to recordings from a specific point in time.

Time & date selector

Simply select the required date in the date field, and the required time in the time field.

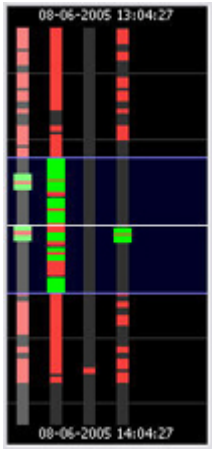
Tip: You are able to overwrite the fields' date and time values.

Having used the data & time selector to jump to recordings from a specific point in time, you are able to use e.g. the timeline browser or the playback controls to browse through recordings from around the specified point in time.

- ## Browsing Recordings with the Timeline Browser

The timeline browser displays an overview of periods with recordings from all cameras displayed in your current camera layout.

The number of timelines displayed in the timeline browser reflects the number of cameras displayed in the camera layout you are viewing. The timeline of the camera selected in the camera layout is highlighted.



Timeline browser; displaying timelines for a camera layout with four cameras

The timeline browser uses the following colors:

Red (●): Recordings with motion
Green (●): Recordings without motion
Black (●): Periods without recordings
Yellow (●): Audio recordings

The timeline browser's white horizontal line indicates the point in time from which recordings are being displayed in the camera layout.

The area between the timeline browser's two blue horizontal lines is a magnification of the 30 seconds preceding and following the point in time from which recordings are being displayed in the camera layout.

You are able to specify which time span (1 hour, 2 hours or 12 hours) should be used in the timeline, and whether the newest recordings should be indicated at the top or at the bottom of the timeline. You specify this in the *Settings* control panel.

Tip: Use 1-hour or 2-hour time spans for the best possible overview of recordings

What to Do

To browse recordings using the timeline browser, click inside the timeline browser, and move your mouse up or down without releasing the mouse button.

Browsing is fast when clicking outside the magnification area, and slow when clicking inside the magnification area.

- ## Browsing Recordings with the Playback Controls

The *Viewer*'s playback controls are used for browsing and playing recordings, just like on a video recorder

Playback controls

Click or to browse to the oldest or the most recent recordings from the selected camera.

Click or to browse to the previous or next motion sequence from the selected camera.

Click or to browse to the previous or next image from the selected camera.

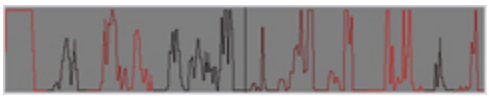
Use to start and stop playback. When playback is started, all cameras in the camera layout will play back recordings.

Use

to control the playback speed. When the slider is in its middle position, playback is real-time, regardless of the recorded frame rates.

- ## Browsing Recordings with the Motion View

Motion view lets you view a graph displaying sequences of recordings from the selected camera. The motion levels indicated in the graph can be used as an indication of what has been recorded. The graph is draggable, allowing you to browse the sequences.


Motion view graph

To use motion view, click the *Motion View* icon in the toolbar to open the *Motion View* control panel, in which the draggable graph is displayed.

Motion View icon

A change in the color of the graph indicates the start of a new motion sequence. The black vertical line at the center of the graph indicates the point in time from which recordings are being displayed in the camera layout.

What to Do

To browse recordings using motion view, click inside the graph area, and move your mouse sideways to browse recordings. Images are updated when you release the mouse button.

- ## Browsing Recordings with the Alarm Overview

Alarm overview lets you view a list of sequences with detected motion for a selected camera. Listed motion sequences or events are clickable, allowing you to quickly jump to the time at which motion was detected or an event occurred.

To use the alarm overview, click the *Alarm Overview* icon in the toolbar to open the *Alarm Overview* control panel, in which the list is displayed.

Alarm Overview icon

By default, the list shows motion sequences from the most recent database for the selected camera. If you want to view a list of sequences from archived databases as well, click the *Alarm Overview* control panel's *Get All* button.

Alarm Overview control panel

In addition to listing motion sequences, the *Alarm Overview* control panel can also display a list of occurred events (the camera's event log). To toggle between viewing a list of motion sequences and a list of occurred events, click the *Alarm Overview* control panel's *Sequences* and *Events* buttons.

What to Do

To view recordings from the time at which motion was detected, or an event occurred, select the required sequence/event in the list. When you select a sequence/event in the list, the camera layout will display images matching the exact time of the motion detection or event.
To view what took place prior to and after the motion detection or event, use the timeline browser or playback controls to browse recordings from around the time of the motion detection or event.

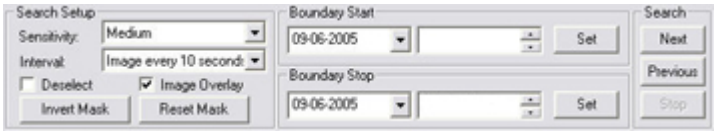
- ## Browsing Recordings with Smart Search

Smart search lets you search for motion in one or more selected areas of images from a particular camera.
To use smart search, do the following:

1. Select the required camera in the camera layout.
2. Single view is required to use smart search. If you are not already viewing images from the selected camera in single view, click the *Single View* icon in the toolbar to switch to single view.

Single View icon

3. Click the *Smart Search* icon in the toolbar to open the *Smart Search* control panel.



Smart Search control panel

When the *Smart Search* control panel opens, a blue grid will also appear as an overlay on the image in the camera layout.

4. Click and drag inside the image to select the areas in which you want to perform the smart search.

The areas you select will become visible through the blue overlay. The blue overlay thus indicates areas to be *excluded* from the smart search.

Example of selected area

5. In the *Smart Search* control panel, select required sensitivity in the *Sensitivity* list.

6. Select required image interval in the *Interval* list.

If you select *All Images*, all images will be analyzed; if you select e.g. *Image every 10 seconds*, only one image per ten seconds of recordings will be analyzed. Selecting a long interval will greatly reduce the time required to complete the search. However, with a long interval, the search may not find motion sequences that are shorter than the specified interval.

7. In the *Boundary Start* and *Boundary Stop* sections, specify the period of time to be covered by the search.

Note that the smart search is always carried out from the time of the image you are viewing and forwards or backwards. The information you specify in the *Boundary Start* and *Boundary Stop* sections is only used to limit the search.

8. Click the *Next* (move forward in time) or *Previous* (move back in time) buttons to search through images with motion detected in the selected areas within the specified period of time.

Each image in which motion has been found will be displayed in the camera layout. The *Smart Search* control panel will show corresponding time information.

Smart Search control panel, displaying search status information

For each image found, you have the following options in the *Smart Search* control panel:

- ***Deselect*:** Even while viewing images in which motion has been found, you are able to adjust the area covered by smart search by dragging inside the image. Normally, the areas you select by dragging inside the image are *included* in the search.

  However, when you are looking through the smart search results, you may want to be able to quickly *exclude* some areas: When this is the case, select the *Deselect* check box. Now, areas you select in the image will be excluded from the smart search.

- ***Image Overlay*:** Select check box to display the blue image overlay grid indicating areas excluded from the search.

- ***Motion in Image*:** Select check box to highlight found motion in images.

- ## Digital Image Control and Optimization

With the *Viewer*'s *Image Controls* control panel, you are able to adjust the image selected in the camera layout. The *Image Controls* control panel also lets you view areas of the selected image in greater magnification.

To access the *Image Controls* control panel, click the *Image Controls* icon in the toolbar.

Image Controls icon

Image Controls control panel

De-interlacing

Interlacing is a method determining how an image is refreshed when shown on a screen. With interlacing, the image is refreshed by first scanning every other line in the image, then scanning every opposite line, and so forth.

This allows for a faster refresh rate because less information must be processed during each scan. However, in some situations, interlacing may cause flickering, or the changes in only half of the image's lines for each scan may be noticeable.

If images from the selected camera are interlaced, you are able to de-interlace the image by viewing only odd or even lines in the image.

Zoom Controls

With the zoom controls, you are able to view areas of the selected image in greater magnification.

Use the large *zoom in* and *zoom out* buttons to find the required zoom level. When you have zoomed in on an area of an image, you are able to move around within the zoomed image by clicking the arrow buttons.

To quickly return to normal view of the selected image (i.e. without zoom), click the *H* (i.e. home) button.

Tip: To move around within the zoomed image, you may also simply click and drag the image in the required direction.

Smoothening and Scaling

To digitally smoothen images from the camera, select the *Smooth Images* check box.

To display images from the selected camera in the resolution they were recorded in, select the *Scale 1 : 1* check box.

If images are larger than the resolution available in the camera layout's camera slot, they will be reduced in size to fit the camera slot. The correct aspect ratio will be maintained when reducing size this way.

- ### Printing, Sending and Exporting Evidence

  With the *Viewer*, you have several options for generating video and audio evidence. You are able to:

  - Print evidence
  - Send evidence via e-mail
  - Export entire video and audio sequences in three different formats

Viewer: How to...

You are able to save particular configurations of the *Viewer*'s camera layout as so-called views, and switch between them using the *Views* menu in the *Viewer*'s menu bar. For example, you may store one view displaying images from 16 cameras and another view displaying images from eight other cameras.

- ### Storing a View

  To store your current camera layout as a view, do the following:

  1. In the *Viewer*'s menu bar, select the *Views* menu.
  2. In the *Views* menu, select the *Add to Views...* command.

     This will open the *Name of View* window:

     The *Name of View* window
  3. In the *Name of View* window, specify a name for the view, and click *OK*.
  4. The view will now be selectable in the *Views* menu. If storing several different configurations of the camera layout as views, you will thus be able to switch between them using the *Views* menu.

- ### Recalling a View

  To recall a stored view, simply select the required view in the *Views* menu.

- ### Editing or Deleting a Stored View

  To edit or delete stored views, select *Organize Views...* in the *Views* menu. This will open the *Views* control panel, in which you are able to rename views, change the sequence in which stored views appear in the menu, and delete views.

To print evidence from the *Viewer*, use the following procedure:

1. Select the required camera in the camera layout (see Using the *Viewer*), and browse to the image you want to print.
2. Click the *Print* icon:

   The *Print* icon

   This will open the *Print* control panel:

The *Print* control panel

3. Fill in the *Operator's Note*, *Company*, and *Operator* fields.

4. Click the *Print* button to print the evidence on your default Windows printer.

   The printed surveillance report will contain the selected image, information about camera name, image capture time and report print time as well as the specified operator's name and operator's note.

To send evidence from the *Viewer* via e-mail, use the following procedure:

Note: The e-mail feature must be set up by the surveillance system administrator before you can use it. Ask if in doubt.

1. Select the required camera in the camera layout (see Using the *Viewer*), and browse to the image you want to send via e-mail.

2. Click the *Send E-mail Report* icon:

   The *Send E-mail Report* icon

   This will open the *E-mail Report* control panel:

The *E-mail Report* control panel

3. Type the e-mail address of the recipient.

   If sending to several recipients, separate e-mail addresses with a semicolon (example: aa@aa.aa;bb@bb.bb).

4. Type a subject text for the e-mail.

5. Verify that the *Image* field lists the camera you require.

6. Type a message, typically a description of the recorded incident.

7. Click the *Send* button.

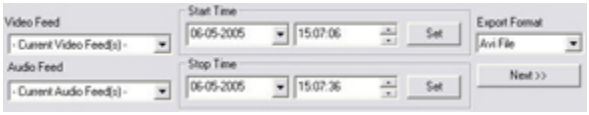
You are able to export entire video and audio sequences in three different formats:

- AVI file (movie clip)
- Database files (you can include the *Viewer* itself in the export, so others can easily view the database files)
- JPG/WAV files (image/audio clip)

To export evidence from the *Viewer*, use the following procedure:

1. Click the *Export* icon:

   This will open the *Export* control panel.

   The *Export* control panel

2. In the *Export* control panel's *Video Feed* and *Audio Feed* lists, select the camera and—if required—audio source you want to export.

   Tip: With the options *Current Video Feed(s)* and *Current Audio Feed(s)* you can batch export all cameras and microphones in your current view.

3. Browse to the required start time for the export, and click the *Start Time* section's *Set* button.

4. Browse to the required stop time of the export, and click the *Stop Time* section's *Set* button.

5. Select required *Export Format*, click the *Next* button, and follow **one** of the procedures described in the following. Note that procedures vary depending on the selected export format.

Export format: AVI file

a. Select required *Export Path* (if you keep the default setting, the files will be exported to an *Exported Images* folder on your desktop).

b. Select required frame rate. *Full* will export all images to the AVI file; *Half* will reduce the size of the AVI file by only exporting every second image, yet still play back in real-time speed.

c. Select whether timestamps from the surveillance system should be added to the AVI file.

d. In the *Codec* list, select the video codec (compression/decompression technology) you want to use for generating the AVI file.

   The *Codec* list only lists codecs supporting the resolution of the camera.

   Tip: If available, the codecs *Indeo Video 5.10* or *Microsoft Video 1* are recommended.

e. Click the *Next* button to start the export.

Export format: Database files

a. Select required *Export Path* (if you keep the default setting, the database files will be exported to an *Exported Images* folder on your desktop).

b. Select whether the *Viewer* program files should be included in the export. If you include the *Viewer* in the export, the exported databases can be viewed on any PC.

c. Click *Next*. Fill in the *Operator* and *Operator's Note* fields.

d. Click *Next*, and select whether to encrypt and/or compress the exported databases. If you select encryption, specify a password for decrypting the exported databases, and remember to send the password to the recipient **separately**.

e. Click the *Next* button to start the export.

   Tip: If you included the Viewer application in your export, copying all exported files to the root of a CD or DVD will start the CD/DVD automatically when the recipient inserts it.

Export format: JPG / WAV files

a. Select required *Export Path* (if you keep the default setting, the files will be exported to an *Exported Images* folder on your desktop).

b. Select whether timestamps from the surveillance system should be added to the exported JPGs.

c. Click *Next* to start the export.

Note that if the *Monitor* application is not installed on your surveillance system, you may still include a standalone version of the *Viewer* when exporting database content from the *NetGuard EVS*; including the *Viewer* in the export will provide recipients (for example investigators, police authorities, etc.) with a convenient tool for browsing the exported database content.

You are able to view archived recordings in the *Viewer* (alternatively, use the *NetGuard EVS*). You are able to use all of *Viewer*'s features (browsing, smart search, evidence export, etc.) for archived recordings as well.

- ### Viewing Recordings from Archives Stored Locally or on Network Drives

  For archived recordings stored locally or on network drives you simply use the *Viewer*'s browsing features, for example the timeline browser or the playback controls, for finding and viewing the required recordings; just like you would with recordings stored in a camera's regular database.

- ### Viewing Recordings from Exported Archives

  For exported archives, e.g. archives stored on a CD, you click the browse button in the *Viewer*'s *Database Information* control panel to browse for the archive you want to view.

  Once you have specified the required archive this way, you can use all of the *Viewer*'s image browsing features for navigating the recordings in the archive.

Remote Access

Remote users can access a NetDVR surveillance system in different ways:

- With a *NetGuard* (can be installed locally or run from server, good selection of standard features)

Example of *NetGuard* user interface

- With a *NetGuard EVS* (installed locally, very feature-rich, based on the .Net platform and thus highly flexible for future integration of plugins, etc.)

Example of *NetGuard EVS* user interface

- With a regular Microsoft Internet Explorer browser, using NetDVR's built-in *Web and Realtime Feed Servers* (offer a very limited feature set, recommended only for remote users on very slow connections). Whether this remote access method works on you surveillance system depends on how your surveillance system was installed; see Administration of Web Server and Realtime Feed Server for more information.

Example of user interface provided through regular browser

- With a *NetPDA/NetCell Client* installed on a handheld computer device with a wireless connection

Example of *NetPDA/NetCell Client* user interface

The way remote access is handled at the surveillance system server end is different, depending on remote access method:

- **Server End: Providing Access through a NetGuard or NetGuard EVS**

  Images viewed by *NetGuard* and *NetGuard EVS* users are provided by the NetDVR surveillance system's *Image Server*.

  The *Image Server* runs as a service on the NetDVR server; it does not require separate hardware.

  The NetDVR system administrator uses the *Image Server Administrator* window to manage *NetGuard* and*NetGuard EVS*access to the surveillance system.

- **Server End: Providing Access Through Regular Browser**

  As an alternative to using *NetGuard* or *NetGuard EVS*, images can also be provided through the NetDVR surveillance system's built-in *Web Server* and *Realtime Feed Server*.

  When this is the case, remote users connect to the *Web Server* and the *Realtime Feed Server* through a regular browser; no client software is required.

  The *Web Server* and the *Realtime Feed Server* do by no means offer as advanced functionality as the *Image Server*/*NetGuard*/*NetGuard EVS*; neither at the server end, nor at the client end. However, if remote users are to access the surveillance system through very slow connections, such as 28.8 Kbps connections, using the *Web Server* and the *Realtime Feed Server* may be advisable.

  For a remote user perspective of regular browser access through the *Web Server* and *Realtime Feed Server*, see Remote Access through Web and Realtime Feed Servers.

- **Server End: Providing Access Through a NetPDA / NetCell Client**

  Use of the *NetPDA/NetCell Client* requires that a matching *NetPDA/NetCell Server* is installed on the surveillance system.

  The *NetPDA/NetCell Server* is installed on an Internet Information Services (IIS) server, and is used as a front-end to the NetDVR system's *Image Server*, on which user rights are defined. The *NetPDA/NetCell Server* handles login and session requests between the *NetPDA/NetCell Client* and the *Image Server*. The *NetPDA/NetCell Server* also handles resizing of surveillance images to fit the screen layout of the *NetPDA/NetCell Client*.

  For more information, see Installing & Configuring the NetPDA/NetCell Server.

Your organization's choice of remote access solution will depend on the organization's requirements:

- **Deciding Which Remote Access Solution to Use**

  When deciding which remote access solution is the best choice for your organization, system administrators may find it helpful to review the following:

Note: Systems and requirements differ from organization to organization. The following questions and answers are thus for guidance only.

Do you require a NetPDA-based solution?

- **Yes:** Use the *NetPDA/NetCell Client/Server* solution. If required, you can of course combine the NetPDA/NetCell solution with other remote access solutions, such as the *NetGuard EVS*.
- **No:** Determine your needs based on the questions and answers provided in the following.

Has your surveillance system's recording server been installed as a service (rather than as the Monitor application)?

- **Yes:** Use *NetGuard EVS* access through the *ImageServer*. The *NetGuard EVS* offers functionality otherwise only available through the *Monitor* application.
- **No:** Determine your needs based on the questions and answers provided in the following.

Will remote users access the surveillance system over very slow connections, such as 28.8 Kbps connections?

- **Yes:** Use regular browser access through the *Web Server/RealtimeFeed Server*.
- **No:** Use *NetGuard* or *NetGuard EVS* access through the *ImageServer*.

Is it acceptable to install client software on remote users' computers?

- **Yes:** Use *NetGuard* or *NetGuard EVS* access through the *ImageServer*.
- **No:** Use *NetGuard* access through the *ImageServer*, as remote users can run the *NetGuard* straight from the NetDVR server as an alternative to the client being installed on remote users' computers. Remote access can also be provided through the *Web Server/RealtimeFeed Server*, as this does not require any client software, but this is only recommended for remote access through very slow connections.

Will you require a large amount of future flexibility from your remote access solution?

- **Yes:** Use *NetGuard EVS* access through the *ImageServer*. Due to the way the software has been developed, the *NetGuard EVS* offers a high degree of flexibility for integration of new features, plugins, etc.
- **No:** Use *NetGuard* access through the *ImageServer*.

Do you require a very feature-rich client application?

- **Yes:** Use *NetGuard EVS* access through the *ImageServer*. The *NetGuard EVS* offers more features for remote users than the other solutions.
- **No:** Use *NetGuard* access through the *ImageServer*.

Do you require a large amount of flexibility remote users' ability to export data?

- **Yes:** Use *NetGuard EVS* access through the *ImageServer*. The *NetGuard EVS* offers the ability to—individual user rights permitting—export evidence in the AVI (movie clip), JPEG (still image) as well as NetDVR database formats.
- **No:** Use *NetGuard* access through the *ImageServer* or regular browser access through the *Web Server/RealtimeFeed Server*. The *NetGuard* offers the ability to—individual user rights permitting—export evidence in the AVI and JPEG formats. With regular browser access through the *Web Server/RealtimeFeed Server*, users are—individual user rights permitting—able to export in the AVI format.

Will you use a .Net-based client application?

What is .Net?

The .Net software development platform allows the interconnection of computers and services for the exchange and combination of data and objects. The platform makes extensive use of so-called web services, which provide the ability to use the web rather than single applications for various services. This in turn provides the ability for centralized data storage as well as automated updating and synchronization of information.

The .Net platform enhances software developers' ability to create re-usable and customizable modules, which makes it possible to develop highly flexible software solutions. You can therefore, as a rule of

thumb, expect .Net-based software to be highly flexible, ready for integration of new features, plugins, etc.

However, organizations and their requirements are different, and some organizations find that the high degree of interconnection of services and computers inherent in a .Net-based solution is not desirable. Instead, such organizations rely on more classic Windows solutions.

- **Yes:** Use *NetGuard EVS* access through the *ImageServer*. The .Net-based *NetGuard EVS* offers more features for remote users than the other solutions. .Net Framework 2.0, downloadable from http://www.microsoft.com/downloads/, is required on computers running the *NetGuard EVS*.
- **No:** Use *NetGuard* access through the *ImageServer*. The *NetGuard* is not a .Net-based solution.

The following table outlines the main differences between the three non-NetPDA remote access solutions:

Remote Access Solutions at a Glance	Regular Browser Access through *Web Server*/ *RealtimeFeed Server*	*NetGuard* Access through *ImageServer*	*NetGuard EVS* Access through *ImageServer*
Remote User's Installation	None; remote user access system through regular browser.	Optional; client can be installed on remote user's computer or accessed from server.	Client must be installed on remote user's computer. .Net Framework 2.0 is required on computers running the *NetGuard EVS*.
Remote User's Feature Set	Limited.	Feature-rich.	Very feature-rich. Includes features otherwise only available in *Monitor* application.
Remote User's Ease of Use	Easy to use.	Very easy to use. Setup of camera views can be handled locally as well as centrally. With central views handling, remote users can begin using their *NetGuard* instantly upon first login.	Very easy to use. Setup of camera views can be handled locally as well as centrally. With central views handling, remote users can begin using their *NetGuard EVS* instantly upon first login.
System Administrator's Installation	None; the *Web Server* and *RealtimeFeed Server* are integrated in NetDVR.	None; the *ImageServer* runs as a service on the NetDVR server.	None; the *ImageServer* runs as a service on the NetDVR server.
System Administrator's Feature Set	Limited; configuration primarily through *Web Server*.	Very flexible; configuration through *ImageServer Administrator* includes handling of local IP address ranges, etc.	Very flexible; configuration through *ImageServer Administrator* includes handling of local IP address ranges, etc.
System Administrator's Access Control Options	Limited; user rights primarily determined on a per-camera basis.	Very flexible; rights for accessing individual *NetGuard* and camera features are determined on a per-user basis.	Very flexible; rights for accessing individual *NetGuard EVS* and camera features can be determined on a per-user basis.

Client Flexibility re. Future Features and Plugins	Very limited.	Limited.	.Net-based, thus offering a high degree of flexibility for integration of new features, plugins, etc. The client solution of the future.
Recommended Use	Systems with remote users on very slow connections.	Systems on which installation of client software must be optional. Systems on which a .Net client solution is not desirable.	Systems on which the recording server has been installed as a service rather than as the *Monitor* application. Systems on which a .Net client solution is desirable. Systems on which a high degree of flexibility, e.g. use of remote access plugin features, will be required.

- **Specific Differences Between NetGuard and NetGuard EVS**

The *NetGuard* and *NetGuard EVS* may initially look quite similar. However, the two clients are programmed differently, they have different installation requirements, and one client offers more features than the other:

Programming Differences: .Net or Not?

As opposed to the *NetGuard*, the *NetGuard EVS* has been developed based on the .Net software development platform.

.Net Framework 2.0, downloadable from http://www.microsoft.com/downloads/, is required on computers running the *NetGuard EVS*.

The .Net software development platform allows the interconnection of computers and services for the exchange and combination of data and objects. The platform makes extensive use of so-called web services, which provide the ability to use the web rather than single applications for various services. This in turn provides the ability for centralized data storage as well as automated updating and synchronization of information.

The .Net platform enhances software developers' ability to create re-usable and customizable modules, which makes it possible to develop highly flexible software solutions. You can therefore expect the .Net-based *NetGuard EVS* to be a highly flexible client, ready for integration of new features, plugins, etc.

However, organizations and their requirements are different, and some organizations find that the high degree of interconnection of services and computers inherent in a .Net-based solution is not desirable. If your organization has chosen to apply a conservative approach regarding .Net-based software, using the *NetGuard* will be the perfect solution for you.

Installation Differences

The *NetGuard* can be installed on the remote user's computer, or the user can connect to the NetDVR server and run the *NetGuard* straight from the server.

The *NetGuard EVS*must always be installed on the remote user's computer.

.Net Framework 2.0, downloadable from http://www.microsoft.com/downloads/, is required on computers running the *NetGuard EVS*.

Feature Differences

The *NetGuard EVS* offers considerably more advanced features than the *NetGuard*.

For information about the features of each client, refer to NetGuard Introduction and NetGuard EVS Introduction.

Image Server Administration

The *Image Server* provides access to the surveillance system for remote users logging in with a *NetGuard* or a *NetGuard EVS*. If the *NetPDA/NetCell Server* front end is installed, the *Image Server* also handles access for *NetPDA/NetCell Client* users.

The *Image Server* itself does not require separate hardware; it runs as a service on the surveillance system server (i.e. the computer running the NetDVR software). Surveillance system administrators use the *ImageServer Administrator* window to manage the *Image Server*'s settings.

Access: To access the *ImageServer Administrator* window, double-click the *Image Server Administrator* desktop shortcut:

Each section of the *ImageServer Administrator* window is described in the following:

- ### Server Configuration Section

  The *Server Configuration* section is used for specifying server name and port, for enabling optional external access to the server, for optional definition of IP address ranges which should be recognized as being local, and for specifying a maximum number of remote users allowed to connect simultaneously.

  The *Server Configuration* section contains the following fields and buttons:

Field, Button	Description
Name	Lets you specify a name for the server. By default, the name is simply *Server*. You are able to change the default name. *NetGuard* and *NetGuard EVS* users with rights to configure their clients will see the name of the server when they create views on their client's *Setup* tab.
Port	Lets you specify a port number to use for the server. The default port number is 80. You are able to change the default port number.
Enable Outside Access	Select the check box if the server should be accessible from the internet via a router or firewall. If selecting this option, also specify the outside (public) IP address and port number in the *Outside IP Address* and *Outside Port* fields. **Note:** When using outside access, the router or firewall used must be configured so requests sent to the outside (public) IP address and port are forwarded to the inside (local) IP address and port of the server running the *Image Server* service.
Outside IP Address	Lets you specify a public IP address for use when the server should be available from the internet.

Outside Port	Lets you specify a port number for use when the server should be available from the internet. The default port number is 80. You are able to change the default port number.
Local IP Ranges...	Opens the *Define local IP ranges* window, in which you are able to define IP address ranges which the *Image Server* should recognize as coming from a local network. Background: When a *NetGuard or NetGuard EVS*connects to a surveillance system, an amount of initial data communication, including the exchange of contact IP addresses goes on in the background, completely automatically and transparent to users. However, when a *NetGuard or NetGuard EVS* on a local network connects to a surveillance system which is also on the local network, the *Image Server* may, if different subnets are involved, not recognize the *NetGuard* or *NetGuard EVS* client's IP address as being local. When this is the case, the *Image Server* may not return a suitable IP address to the *NetGuard* or *NetGuard EVS* for further communication between the two. Therefore, you are able to define a list of IP ranges which the *Image Server* should recognize as coming from a local network, in which case it will respond with a suitable IP address and seamless communication will be possible.
Max. number of clients	The maximum number of *NetGuard and NetGuard EVS* allowed to connect at the same time is five. You are able to further limit the number of *NetGuard* and *NetGuard EVS users* allowed to connect at the same time. Depending on your NetDVR configuration and the performance of the hardware and network used, limiting the number of simultaneously connected clients may help reduce server load. If more than the allowed number of simultaneously connected *NetGuard/NetGuard EVS* attempt to log in, only the allowed number of *NetGuard/NetGuard EVS* will be allowed access. Any *NetGuards/NetGuard EVS* in excess of the allowed number will receive an error message when attempting to log in. To specify a different maximum number of *NetGuards/NetGuard EVS* allowed to connect at the same time, overwrite the value in the *Max. number of clients* field with the required value. **Note:** A four-minute session timeout period applies for client sessions on the *Image Server*. In many cases, *NetGuard* or *NetGuard EVS* users may not notice this at all. However, the session timeout period will be very evident in some cases, for example if you set the *Max. Number of client's* value to *1*: When this is the case, and the single allowed *NetGuard* or *NetGuard EVS* user logs out, four minutes must pass before it will be possible to log in again.

- ## User Administration Section

Accounts and rights for *NetGuard* and *NetGuard EVS* users are configured in the *ImageServer Administrator* window's *User Administration* section. *NetGuard* and *NetGuard EVS* users must be defined in this section in order to be able to log in to the surveillance system.

Defining Users

To define *NetGuard* and *NetGuard EVS* users click the *User Setup* button. This will open the *User administration* window, in which you define users.

Defining User Access Rights

Once you have defined users, you are able to define whether all users should have access to all *NetGuard*/*NetGuard EVS* features and all available cameras, or whether access should be restricted by user.

Full Access for All Users

To give all users access to all *NetGuard*/*NetGuard EVS* features and all available cameras, select *Full access for all users*.

Restricted Access

To use restricted access, select *Restrict user access*. Then click the *User Access...* button to open the *Define User Rights* window, in which you define access rights for each user.

- ## Log Files Section

In the *Log Files* section, specify the number of days to keep log files in the *Image Server*'s regular event log.

By default, such log files are kept for ten days before they are deleted.

Tip: Read more about NetDVR logging in About Logging.

- ## Audit Log Section

Audit logging is the logging of *NetGuard* and *NetGuard EVS* user actions.

If this type of logging is required, select the *Enable Audit Logging* check box.

When audit logging is enabled, you are able to specify the following values:

- ***Days to log*:** Number of days in which audit log files should be kept before they are overwritten. Default is 30 days. If you specify 0 (zero), audit log files will be kept indefinitely (disk storage space permitting).
- ***Minimum Logging Interval*:** Minimum number of seconds between logged events. Specifying a high number of seconds between logged events may help reduce the size of the audit log. Default is 60 seconds.
- ***In Sequence Timespan***: Maximum number of seconds to pass for viewed images to be considered to be within the same sequence. Specifying a high number of seconds may thus help limit the number of viewed sequences logged, and reduce the size of the audit log. Default is ten seconds.

Tip: Read more about NetDVR logging in About Logging.

- ## Language Support and XML Encoding Section

In the *Language Support and XML Encoding* section, select the language/character set used on the NetDVR server. This will ensure that the right language and character encoding is used in clients' communication with the server.

- ## Good to know: Remote Viewing of Live Images from Stopped Cameras

  NetGuard and *NetGuard EVS* users are able to view live images from cameras even though the cameras in question are stopped. This, however, requires that a particular setting in the *Administrator* application is enabled.

  Note: Access to features in the *Administrator* application, including those described in the following, may require administrator rights.

  To enable the required setting, open the *Administrator* application, and do the following:

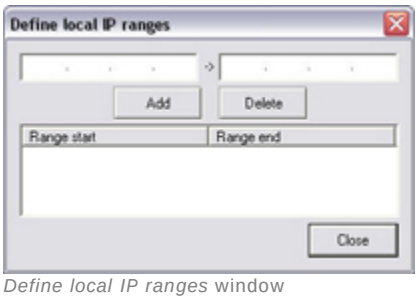
  1. In the *Administrator* window, click the *General Settings...* button.

     This will open the *General Settings* window.

  2. In the *General Settings* window's *Advanced* section, select *Start cameras on remote live requests*.

  3. Click *OK*.

The *Image Server*'s *Define local IP ranges* window lets you define IP address ranges which the *Image Server* should recognize as coming from a local network.



Define local IP ranges window

Access: You access the *Define local IP ranges* window by clicking the *Local IP Ranges...* button in the *ImageServer Administrator* window.

To define a local IP address range in the *Define local IP ranges* window, do the following:

1. Specify the beginning of the IP address range in the *Define local IP ranges* window's first field, and the end of the IP address range in the second field.

2. Click the *Add* button.

   The IP address range will be added to the list in the lower part of the *Define local IP ranges* window.

   You may define as many local IP address ranges as required. If required, an IP address range may include only one IP address (example: 192.168.10.1-192.168.10.1).

3. When ready, click the *Define local IP ranges* window's *Close* button to return to the *ImageServer Administrator* window.

Tip: There is no feature for editing an already defined IP address range in the *Define local IP ranges* window. However, you can simply select the range in question in the *Define local IP ranges* window's list, delete it by clicking the *Delete* button, and then simply add a new range reflecting your requirements.
The *Image Server*'s *User administration* window lets you define *NetGuard* and *NetGuard EVS* users.

Access: You access the *User administration* window by clicking the *User Setup...* button in the *ImageServer Administrator* window.

You are able to add new users in two ways, which may be combined. Note, however, that only one of the ways will work for *NetGuard* users:

- ***Basic user*:** Lets you create a dedicated surveillance system user account with basic user name and password authentication for each individual user. This method works for *NetGuard* as well as *NetGuard EVS* users. If the *NetPDA/NetCell Server* is installed, this method also works for *NetPDA/NetCell Client* users.

- ***Windows user*:** Lets you import individual users defined locally on the server, and authenticate them based on their Windows login. This method only works for *NetGuard EVS* users.

Each of the two methods is described in the following:

- ## How to Add a New Basic User

  To define a new dedicated surveillance system user account with basic user name and password authentication, click the *User administration* window's *Add Basic User...* button, specify required user name and password, and click *OK*.

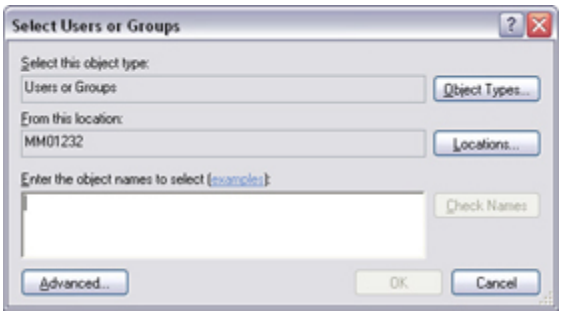
  This will add the user to the *User administration* window's list of users. In the list's *Type* column, the user will appear as a *Basic User*. A *Basic user* is furthermore indicated by a blue dot next to the user icon. Example:

- ## How to Add a New Windows User

  Prerequisites: The users you want to add must have been defined as local PC users on the server. Simple file sharing must be disabled on the server. To disable simple file sharing, right-click Windows' *Start* button and select *Explore*. In the window that opens, select the *Tools* menu, then select *Folder Options...*, then the *View* tab. Scroll to the bottom of the tab's *Advanced Settings* list, and make sure that the *Use simple files sharing (Recommended)* check box is cleared. When ready, click *OK* and close the window.

  Provided required users have been defined locally on the server, and simple file sharing is disabled on the server, you are able to add *Windowsusers* the following way:

  1. In the *User administration* window, click the *Add Windows User...* button. This will open the *Select Users or Groups* window:

     Note that you will only be able to make selections from the local computer, even if you click the *Locations...* button.

  2. In the *Enter the object names to select* box, type the required user name(s), then use the *Check Names* feature to verify that the user name(s) you have entered are correct.

     Note: If typing several user names, separate each name with a semicolon. Example: *Brian; Hannah; Karen; Sean*

  3. When ready, click *OK*. The required users and will be imported, and listed in the *User administration* window.

     A user imported this way will appear as a *Windows or Active Directory User* in the list's *Type*

column. The user will furthermore be indicated by a user icon *without* the blue dot used for *Basic users*. Example:

When a user who has been added this way logs in with a *NetGuard EVS*, the user should not specify any server name, PC name, or IP address as part of the user name. Example of a correctly specified user name: USER001. Example of an incorrectly specified user name: PC001/USER001. The user should of course still specify a password and any required server information.

- ## How to Edit an Existing User Name or Password

Editing an existing user's user name or password is only possible if the user in question is of the type *Basic user*.

To edit the user name or password for an existing *Basic user*, do the following:

1. Select the required user in the *Current users* list, and click the *Change password...* button.
2. Edit the user name and/or password as required, then click *OK*.

Remember to inform the user about the change.

- ## How to Remove an Existing User

To remove a user from the *User administration* window's list of users, select the user in the list and click the *Delete* button.

When removed from the list, the user will no longer be able to log in.

Note: Using this method to delete an imported *Windows user* will only remove the user's right to log in with the *NetGuard* or *NetGuard EVS* or—if applicable—*NetPDA/NetCell Client*; it will not remove the user's data defined locally on the server.

- ## What Information to Provide to Users

The information you need to provide in order to enable users to effortlessly log in to the surveillance system depends on whether the users are using *NetGuard* or *NetGuard EVS*. For *NetPDA/NetCell Client* users, see Using the NetPDA/NetCell Client.

NetGuard Users
When users log in with *NetGuard*, they will always use basic authentication. Provide them with the following information:

- ***User name:*** Remember that user names are case sensitive, so make it clear to the users if any parts of their user names should specifically be upper or lower case.
- ***Password*:** Users should enter their passwords exactly as you have specified them on the *Image Server*.
- ***Address***: IP address or hostname of the *Image Server*.
- ***Port*:** Port to use when accessing the *Image Server*, e.g. 80.

NetGuard EVS Users
When users log in with *NetGuard EVS*, they must select between using basic or Windows-based authentication. Provide them with the following information:

- ***Server Address*:** IP address or hostname of the *Image Server*, plus any port number required. In the *NetGuard EVS clients*'s login dialog, users will enter this information in a single field called *Server Address*, so if the IP address is 123.123.123.123 and the port number is 80, tell users

that the *Server Address* is 123.123.123.123:80.

- ***Authentication***: In the *NetGuard EVS*'s login dialog, users will be asked to select between basic authentication or Windows-based authentication. Windows-based authentication may in turn be based on the currently logged-in Windows user.
    - If using basic user name and password authentication, tell users that the required authentication is *Basic authentication*.
    - If using Windows-based authentication based on the currently logged-in Windows user, tell users that the required authentication is *Windows authentication (current user)*.
    - If using Windows-based authentication which should not necessarily be based on the currently logged-in Windows user, tell users that the required authentication is *Windows authentication*.

- ***User name*:** Only required if using *Basic authentication* or *Windows authentication*. Remember that user names are case sensitive, so make it clear to the users if any parts of their user names should specifically be upper or lower case.

- ***Password*:** Only required if using *Basic authentication* or *Windows authentication*.
    - Users with *Basic authentication* or *Windows authentication* will have the option of selecting ***Remember password***, which will help them speed up subsequent login procedures. Inform users whether they are allowed to use this feature.

- ***Auto-login*:** Users will have the option of selecting *Auto-login*, in which case the *NetGuard EVS* will automatically start up and log in with the selected authentication method each time Windows is started (for *Basic authentication* and *Windows authentication* this will require that *Remember password* is selected). Inform users whether they are allowed to use this feature.

The *Image Server*'s *Define User Rights* window lets you define access rights for *NetGuard* and *NetGuard EVS* users.

Define User Rights window

Access: You access the *Define User Rights* window by clicking the *User Access...* button in the *ImageServer Administrator* window. The button is only available if you have selected the *ImageServer Administrator* window's *Restrict user access* option button.

Prerequisites: Before you define user rights, you should define users. You do this by clicking the *ImageServer Administrator* window's *User Setup...* button.

To define access rights for a particular user, do the following in the *Define User Rights* window:

1. In the *User* list, select the required user.

2. In the *Global User Rights* section, select the user's global (i.e. non-camera-specific) rights:

   - ***View Live*:** Ability to view the *Live* tab in the *NetGuard/NetGuard EVS*. If a user does not have this right, the *Live* tab will not be selectable in the *NetGuard/NetGuard EVS*.

   - ***Browse*:** Ability to view the *Browse* tab in the *NetGuard/NetGuard EVS*. If a user does not have this right, the *Browse* tab will not be selectable in the *NetGuard/NetGuard EVS*.

   - ***Setup*:** Ability to view the *Setup* tab in the *NetGuard/NetGuard EVS*. If a user does not have this right, the *Setup* tab will not be selectable in the *NetGuard/NetGuard EVS*.

   - ***Edit Shared Views*:** Ability to create and edit views in shared groups in the *NetGuard/NetGuard EVS*. Views placed in shared groups can be accessed by every *NetGuard/NetGuard EVS* user (for more information about views, see *Creating Views (NetGuard)* and *How to Create and Manage Views (NetGuard EVS)*). If a user does not have this right, shared groups in the *NetGuard/NetGuard EVS* will be protected, indicated by a padlock icon.

     Note: Views created in a *NetGuard* can only be shared with other *NetGuard* users. Views created in a *NetGuard EVS* can only be shared with other *NetGuard EVS* users. It is not possible to share views across the two types of client.

   - ***Edit Private Views*:** Ability to create and edit views in private groups in the *NetGuard/NetGuard EVS*. Views placed in private groups can only be accessed by the *NetGuard/NetGuard EVS* user who created them (for more information about views, see *Creating Views (NetGuard)* and *How to Create and Manage Views (NetGuard EVS)*). If a user does not have this right, private groups in the *NetGuard/NetGuard EVS* will be protected, indicated by a padlock icon. Denying remote users the right to create their own views may make sense in some cases; for example in order to limit bandwidth use.

   Tip: By clearing the *View Live*, *Browse* and *Setup* check boxes you can effectively disable the user's ability to use the *NetGuard/NetGuard EVS*, for example while the user is on vacation. This would typically be a temporary alternative to deleting the user.

3. In the *User Rights for Camera* section's *Defined Cameras* list, select each camera to which the user should have access via the *NetGuard/NetGuard EVS*.

   Tip: By pressing the CTRL or SHIFT buttons on your keyboard while selecting cameras in the *Defined Cameras* list, you are able to select several or all of the listed cameras in one go.

4. Click the >> button to move the selected cameras to the *Viewable by selected user* list.

5. For **each** camera now listed in the *Viewable by selected user* list, specify the features to which the user should have access, by selecting the features in the *User Rights for the Selected Camera* section.

   Note that the features are listed in two columns: the left column lists features related to live viewing, the right column lists features related to browsing existing recordings:

   In the *Live* column, the following features, all selected by default, are available:

   - ***Live*:** Ability to view live images from the selected camera.

   - ***PTZ*:** Ability to use the *NetGuard* or *NetGuard EVS client*'s navigation features for PTZ (Pan/Tilt/Zoom) cameras. A user will only be able to use this right if having access to one or more PTZ cameras.

   - ***PTZ Preset Positions*:** Ability to use the *NetGuard*'s or *NetGuard EVS*'s navigation features for moving a PTZ camera to particular preset positions. A user will only be able to use this right if

having access to one or more PTZ cameras with defined preset positions.

- ***Outputs*:** Ability to trigger outputs (e.g. switching on lights, sounding sirens, or similar), if such outputs are available.

- ***Events*:** Ability to use the *NetGuard EVS client*'s *Event* feature for manually triggering events.

Note: The *Event* feature is available in the *NetGuard EVS* only.

- ***Audio*:** Ability to listen to live sound from the selected camera's audio device (available only if camera has audio device attached)

Note: The *Audio* feature is available in the *NetGuard EVS* only.

In the *Browse* column, the following features, all selected by default, are available:

- ***Browse*:** Ability to browse recorded images from the selected camera.

- ***AVI / JPG Export*:** Ability to generate and export evidence as movie clips in the AVI format and as still images in the JPG format.

- ***Database Export*:** Ability to generate and export evidence in database format.

Note: The *Database Export* feature is available in the *NetGuard EVS* only.

- ***Sequences*:** Ability to use the *Sequences* feature for browsing images from a selected camera.

- ***Smart Search*:** Ability to use the *NetGuard EVS client*'s *Smart Search* feature, with which users are able to search for motion in one or more selected areas of images from the selected camera.

Note: The *Smart Search* feature is available in the *NetGuard EVS* only.

Tip: Note that some of the features are mutually dependent: For example, in order have access to PTZ or output features, a user must also have access to viewing live images; and in order to use AVI and JPG export, a user must have access to browsing recorded images.

6. Repeat as required for other users.

NetGuard EVS

The *NetGuard EVS* provides remote users with extremely feature-rich access to the surveillance system.

The *NetGuard EVS* must be installed locally on the remote user's computer.

Tip: See system requirements for the *NetGuard EVS* under System Requirements.

- ### What are Remote Users Able to do with the NetGuard EVS?

  With the *NetGuard EVS*, remote users are able to:

  - View live video from cameras on the surveillance system.
  - Browse recordings from cameras on the surveillance system, with a selection of advanced navigation tools, including a highly intuitive timeline browser.
  - Listen to live or stored recordings from audio sources. Note that audio is available when connecting to selected surveillance systems only; see Surveillance System Differences.
  - Create and switch between an unlimited number of views, each able to display video from up to 64 cameras from multiple servers at a time (depending on the type of surveillance system you connect to). Views can be placed in *private* groups (only accessible by the user who created them) or in groups shared with other users.

- Use views, private as well as shared, on any computer that has a *NetGuard EVS* installed.
- Create special views for widescreen monitors.
- Use multiple screens as well as floating windows for displaying different views simultaneously.
- Quickly substitute one or more of a view's cameras with other cameras.
- View images from several cameras, one after the other, in a single camera spot (a so-called carousel).
- View video from selected cameras in greater magnification and/or higher quality in a designated hotspot.
- Receive and send video through NetMatrix.
- Include HTML pages and static images (e.g. maps or photos) in views.
- Control PTZ (Pan/Tilt/Zoom) and IPIX (360° view) cameras.
- Use digital zoom on live as well as recorded video.
- Activate manually triggered events.
- Activate external outputs (e.g. sirens or lights).
- Use sound notifications for attracting attention to detected motion or events.
- Get quick overviews of sequences with detected motion.
- Get quick overviews of detected alerts or events.
- Quickly search selected areas of video recordings for motion (also known as *smart search*).
- Skip gaps during playback of recordings.
- Configure and use several different joysticks.
- Print images, with optional comments.
- Copy images for subsequent pasting into word processors, e-mail, etc.
- Export recordings (e.g. for use as evidence) in AVI (movie clip), JPEG (still image), and surveillance system database formats. The database format can include audio.
- Use pre-configured as well as customizable keyboard shortcuts to speed up common actions.
- Select between a number of language versions, independent of language used on main surveillance system.

Note: Some of the above features may require certain user rights. Some of the above features may only be available if supported by the surveillance system; see Surveillance System Differences.

- ### How can User Rights Affect Day-to-Day Use of the NetGuard EVS?

The rights of individual remote users are specified centrally by the surveillance system administrator. The rights of an individual user will determine the user's ability to use the *NetGuard EVS client*'s features.

Basically, the surveillance system administrator is able to restrict a user's rights to the following:

- Access to the *NetGuard EVS*
- Access to each of the *NetGuard EVS client*'s tabs: *Live*, *Browse* and *Setup*
- Ability to use features on the *NetGuard EVS client*'s tabs
- Ability to create views (views determine the way in which images from one or more cameras are displayed)
- Ability to view images from specific cameras

The ability to use various features of the *NetGuard EVS* may therefore vary considerably from user to user. Ask your surveillance system administrator if in doubt about your user rights.

Download, Installation & Login

Logging in to the *NetGuard EVS* is very straightforward. So is the initial configuration of the *NetGuard EVS* upon your first login; in fact, configuration may in some cases not be required at all.

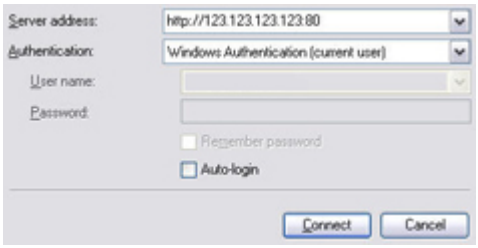
To log in to the *NetGuard EVS*, do the following:

1. Double-click the *NetGuard EVS* shortcut on your desktop.

   If no *NetGuard EVS* desktop shortcut is available, select the *NetGuard EVS* from Windows' *Start* menu (exactly how you do this is determined by where and how you have installed the *NetGuard EVS* on your computer).

2. A splash screen is displayed while the *NetGuard EVS* loads; this typically takes a few seconds only.

3. The *NetGuard EVS* login window appears:



4. Specify your login information in the following fields:

   - ***Server address*:** Type the URL or IP address specified by your surveillance system administrator. Internet connections may use different ports for different purposes; therefore, the URL or IP address may include a port number (example: *http://123.123.123.123:80*, where :80 indicates the port number). If you have logged in before, you may simply select the required server from the *Server address* list.

   - ***Authentication*:** Lets you select between different methods of authentication (i.e. the process of verifying that you are who you claim you are):

     Note: Not all surveillance systems support the use of all three authentication methods; see Surveillance System Differences. Consult your surveillance system administrator if in doubt about which authentication method to use.

     - *Windows authentication (current user)*, with which you will be authenticated through your current Windows login, and do not have to specify any user name or password. This is the *NetGuard EVS client*'s default authentication method, i.e. the method which is automatically used unless you select another method.

     - *Windows authentication*, with which you will be authenticated through your Windows login, but you will need to type your Windows user name and password.

     - *Basic authentication*, which can only be used when connection to selected surveillance systems.

   - ***User name*:** Only required if the authentication method *Windows authentication* or *Basic authentication* is selected. If using *Windows authentication*, type your Windows user name. The user name is case-sensitive, i.e. there is a difference between typing, for example, *amanda* and *Amanda*.

- ***Password*:** Only required if the authentication method *Windows authentication* or *Basic authentication* is selected. If using *Windows authentication*, type your Windows password.

- ***Remember password*:** When using *Windows authentication* or *Basic authentication*, you have the option of selecting *Remember password*, in which case you can simply click *Connect* the next time you want to log in.

Note: Depending on your type of organization and work environment, security restrictions may apply. Consult your surveillance system administrator if in doubt about whether it is safe to use this feature.

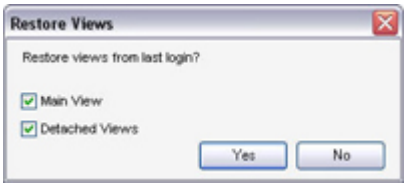
- ***Auto-login*:** If selected, you will automatically be logged in to the *NetGuard EVS*, when you log in to Windows. If using *Windows authentication*, the *Remember password* check box must be selected in order for the auto-login feature to be available.

Note: Depending on your type of organization and work environment, security restrictions may apply. Consult your surveillance system administrator if in doubt about whether it is safe to use this feature.

When ready, click *Connect*.

Tip: If a problem or other issue occurs during login, you will receive an error message; see Login Error Messages for more information.

5. ***Only relevant if you have logged in before; if logging in for the first time, move to step 6.*** The *NetGuard EVS* will ask you if you want to keep the view(s) you last used:



Your options are:

- ***Main View*:** If the check box is selected, the view you last used in the *NetGuard EVS client*'s main window will be restored. If check box is cleared, no view will initially be displayed, in which case you must select the required view yourself.

- ***Detached Views*:** Available only if you used views in primary display, on secondary displays, or in floating windows the last time you were logged in on the computer in question (see Using Multiple Windows for more information). If check box is selected, the views you last sent to primary display, secondary displays and floating windows will be restored.

6. After a short wait, the *NetGuard EVS* window will open.

The *NetGuard EVS* window has three tabs: *Live*, *Browse* and *Setup*.

The *Live* tab is used for viewing live video, the *Browse* tab is used for browsing recorded video, and the *Setup* tab is used for configuring the *NetGuard EVS*. Depending on your user rights, you may not be able to access all three tabs.

If You Log in for the First Time: Determine Available Views

If you have logged in for the first time, you need to determine whether any *views* exist. Among other things, views determine how video from cameras is displayed in the *NetGuard EVS*. Views are thus required in order to be able to use the *NetGuard EVS*.

One or more views may already have been created for you, or you may need to create views yourself. Read more about views, including how to determine if any views have already been created for you, in Private and Shared Views.

Logging in on Different Computers
Your user settings are stored centrally on the surveillance system. This means that your login can be used on any computer that has a *NetGuard EVS* installed.
If a problem or other issue occurs during login to the *NetGuard EVS*, you will see one of the following error messages:

- ***You do not have access to any part of the application (live, browse or setup). Please contact the system administrator.***
  - **Issue:** You currently have no access rights to any part of the *NetGuard EVS*, therefore you cannot log in to the *NetGuard EVS*.
  - **What to do:** Consult your surveillance system administrator, who will be able to change your access rights if required.

- ***Failed to connect. Please check the server address.***
  - **Issue:** It was not possible to connect to the surveillance system server at the specified server address.
  - **What to do:** Verify that you have typed the correct server address. Bear in mind that the *http://* prefix as well as a port number is typically required as part of the server address (example: *http://123.123.123.123:80*, where :80 indicates the port number). Consult your surveillance system administrator if in doubt.

- ***Failed to connect. Please check the username and password.***
  - **Issue:** It was not possible to log in to the *NetGuard EVS* with the specified user name and/or password.
  - **What to do:** Verify that you have typed your user name correctly, then re-type your password to ensure it does not contain errors. Bear in mind that user names as well as passwords may be case sensitive (i.e. there may be a difference between typing *Amanda* and *amanda*). Consult your surveillance system administrator if in doubt.

- ***Failed to connect. Maximum number of clients are already connected.***
  - **Issue:** The maximum number of remote access clients allowed to connect to the surveillance system server simultaneously has been reached.
  - **What to do:** If possible, wait for a while before connecting again. If access to the surveillance system is urgent, contact your surveillance system administrator who may be able to extend the allowed number of simultaneously connected clients.

- ***New Client Available. Update is recommended/required. The new version can be downloaded from ...***
  - **Issue:** A new version of the *NetGuard EVS* is available. This message is typically accompanied by information about whether an update is recommended or whether it is a requirement (for example due to recently introduced features not working in your current *NetGuard EVS* version). The message will typically also contain information about where to download the new version from.
  - **What to do:** Follow the advice given in the message. Consult your surveillance system administrator if in doubt.

In the *NetGuard EVS*, you are able to select between several language versions.

To select a language, do the following:

1. Click the *Show Application Menu* button in the right side of the *NetGuard EVS client*'s top bar.
2. From the menu that appears, select *Language*, then the required language:

3. The *NetGuard EVS* must be restarted in order for the change to take effect. Close your *NetGuard EVS*, then log in again to use the new language version.

Views

The way in which video from one or more cameras is displayed in the *NetGuard EVS* is called a *view*. A view may contain video from up to 64 cameras, depending on the surveillance system to which you connect. A *NetGuard EVS* can handle an unlimited number of views, allowing you to switch between video from various collections of cameras.

In order to help you maintain an easy overview when you navigate between various views in your *NetGuard EVS*, all views are placed in folders called *groups*. A group can contain any number of views and, if required, subgroups.

- ### Difference between Private and Shared Views

  Views can be private or shared:

  - *Private* views can only be accessed by the user who created them.
  - *Shared* views allow many *NetGuard EVS* users to share the same views. This is possible since all views are stored on the surveillance system server. Depending on the type of surveillance system you connect to, shared views can simply be shared by all *NetGuard EVS* users, or access to selected shared views can be given to selected groups of *NetGuard EVS* users.

  Before you create any views, it is important that you are sure about the difference between private and shared views—not least because a number of shared views may already exist in your organization.

  If you already know that shared views exist, and that you have access to them, you can start using your *NetGuard EVS* straight away (see Viewing Live Video and Viewing Recorded Video).

  When you have access to shared views, creating further views in your *NetGuard EVS* will not be necessary unless you want to supplement the shared views with private views of your own.

  If you want to create views yourself, for example if you do not have access to any shared views, the *NetGuard EVS client*'s *Setup* tab lets you create groups and views, and specify which cameras should be included in each view (see How to Create & Manage Views).

  Note: The way shared views work varies slightly depending upon which type of surveillance system you connect to; see Surveillance System Differences for details.

- ### How to Check if Shared Views are Available

  Typically, your surveillance system administrator will have told you if you have access to shared views. Alternatively, to quickly determine whether any shared views are available to you, do the following:

  Note: This method requires that your user rights permit you to access the *NetGuard EVS client*'s *Live* tab and/or *Browse* tab. Most users will have access to at least one of these tabs.

  1. Go to the *NetGuard EVS client*'s *Live* or *Browse* tab.
  2. On the *Live* or *Browse* tab, look at the *Views* section.
  3. The *Views* section will always contain a top-level folder called *Private*. The *Private* top-level folder is for accessing private views; its content depends entirely upon which views—if any—you have created for yourself.

     Any other top-level folders in the *Views* section are for accessing shared views. The names of such other top-level folders depend entirely upon what has been configured on the surveillance system server.

     The fact that the *Views* section contains one or more top-level folders for accessing shared views does not in itself guarantee that shared views are actually available. To verify if any shared views are available under the top-level folders, expand the folders.

Tip: You can use your views, private as well as shared, on any computer that has a *NetGuard EVS* installed. This is because information about your views is stored centrally on the surveillance system server, as part of your user login information.
Depending on your user rights, you may be able to create and edit the following types of views:

- Private and shared
- Private, but not shared
- Shared, but not private
- Neither private, nor shared (in which case you simply rely on shared views created by others)

Typically only a few people in an organization are able to create and edit shared views. For example, the surveillance system administrator may create and maintain a number of shared views: When relevant *NetGuard EVS* users log in, the shared views will automatically be available to them, and they will basically not need to create further views unless they want their own private views.

- ## Checking which Views You are Able to Create and Edit

  To quickly determine which of the *Views* section's top-level folders your user rights permit you to create and edit views in, do the following:

  1. Select any of the *NetGuard EVS client*'s tabs.
  2. Look at the *Views* section:

     You are able to create and edit views under top-level folders which are ***not*** marked by a padlock icon.

     If a top-level folder is marked by a padlock icon, it is protected: You can still use any views under the top-level folder, but you cannot create new views or edit existing views under it.

  Consult your surveillance system administrator if in doubt about your user rights.

- ## Creating Private Views

  Note: Views are created on the *NetGuard EVS client*'s *Setup* tab. Particular user rights may be required in order to access the *Setup* tab.

  To create your first private view, you first create a group under the *Private* top-level group, then create the required view within the group.

  If you have created private views before, you may create the new view in an existing group, or you may create a new group for the view.

  Creating a Group
  To create a group under the *Private* top-level folder, do the following on the *Setup* tab:

  1. In the *Setup* tab's *Views* section, select the *Private* top-level folder.
  2. Click the *Create New Group* button:

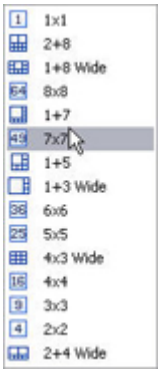
  3. A new group is created. The new group is simply named *New Group*.
  4. Overwrite the default name *New Group* with a group name of your choice.
     You are now able to create a view within the group.

Creating a View within the Group
To create a view in a group,do the following:

5. In the *Setup* tab's *Views* section, make sure the group in which you want to create the view is selected.

2. Click the *Create New View* button:

3. Select the required layout for your new view:



Example only

You are able to select layouts for displaying up to 64 (8×8) cameras in a single view.

Tip: Some of the selectable view layouts are marked *Wide*. These view layouts are especially suitable for widescreen monitors.

4. A new view is created under the group you selected.

The new view carries the default name *New View* plus an indication of the selected layout.

5. Overwrite the default name with a view name of your choice.

You are now able to add cameras to the view.

Tip: A group can contain an unlimited number of views. You may also create any number of subgroups if required.

Tip: For information about adding content (cameras, etc.) to views, see How to Add Content to Views.

- ## Creating Shared Views

Note: Views are created on the *NetGuard EVS client*'s *setup* tab. Particular user rights may be required in order to access the *Setup* tab and in order to be able to create shared views. When creating a shared view, bear in mind that depending on their user rights not all users may have access to all cameras on the surveillance system.

Note: Due to the large amount of new features in the latest *NetGuard EVS* version (3.0), views created in *NetGuard EVS* version 3.0 will not work in previous versions of the *NetGuard EVS*. If creating shared views in *NetGuard EVS* version 3.0, it is thus important that the users with whom you wish to share the views also use *NetGuard EVS* version 3.0.

To create a view under a shared top-level folder, you first create a group under the required shared top-level folder, then create the required view within the group.

If you have created shared views before, you may create the new view in an existing group, or you may create a new group for the view.

Creating a Group
To create a group under a shared top-level folder, do the following on the *Setup* tab:

1. In the *Setup* tab's *Views* section, select the required shared top-level folder (in this example, the required folder is simply called *Shared*).
2. Click the *Create New Group* button:

3. A new group is created. The new group is simply named *New Group*.

4. Overwrite the default name *New Group* with a group name of your choice.

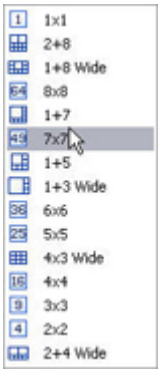
You are now able to create a view within the group.

Creating a View within the Group
To create a view in a group, do the following:

5. In the *Setup* tab's *Views* section, make sure the group in which you want to create the view is selected.

2. Click the *Create New View* button:

3. Select the required layout for your new view:



Example only

You are able to select layouts for displaying up to 64 (8×8) cameras in a single view.

Tip: Some of the selectable view layouts are marked *Wide*. These view layouts are especially suitable for widescreen monitors.

4. A new view is created under the group you selected.

The new view carries the default name *New View* plus an indication of the selected layout.

5. Overwrite the default name with a view name of your choice.

You are now able to add cameras to the view.

Tip: A group can contain an unlimited number of views. You may also create any number of subgroups if required.

Tip: For information about adding content (cameras, etc.) to views, see How to Add Content to Views.

- ## Assigning Shortcut Numbers to Views

Note: Your ability to edit views and groups depends on your user rights. Basically, if you are able to create the view or group, you are also able to edit it.

On the *Setup* tab, you are able to assign shortcut numbers to views. Shortcut numbers allow users to select views using the *NetGuard EVS client*'s standard keyboard shortcuts.

To assign a shortcut number to a view, do the following:

Note: Illustrations used in the following are examples only; top-level folders may have different names in your version.

1. In the *Setup* tab's *Views* section, select the required view.
2. Specify the required shortcut number in the *Shortcut* field, and press ENTER on your keyboard.
3. The specified shortcut number will now appear in brackets in front of the view's name.

   This will also be the case on the *Live* and *Browse* tabs, allowing users to quickly find a view's shortcut number.
4. Repeat as necessary for other views.

- ## Renaming Views or Groups

Note: Your ability to edit views and groups depends on your user rights. Basically, if you are able to create the view or group, you are also able to edit it.

To rename a view or group, do the following on the *Setup* tab:

1. Select the required view or group in the *Views* section.
2. Click the *Rename* button:

3. Overwrite the existing group name with a new name of your choice.

- ## Deleting Views or Groups

IMPORTANT: Deleting a group will delete all views and any subgroups within the group as well.

Note: Your ability to edit and delete views and groups depends on your user rights. Basically, if you are able to create the view or group, you are also able to edit and delete it.

To delete a view or group, do the following on the *Setup* tab:

1. Select the required view or group in the *Views* section.
2. Click the *Delete* button:

   You will be asked to confirm that you want to delete the selected view or group.

- ### Using Your Views on Different Computers

  Your user settings, including information about your views, are stored centrally on the surveillance system server.

  This means that you are able to use your views, private as well as shared, on any computer that has a *NetGuard EVS* installed, provided you log in to the *NetGuard EVS* with your own user name and password.

Tip: For information about adding content (cameras, etc.) to views, see How to Add Content to Views.

Note: From time to time your surveillance system administrator may make changes to camera or user properties on the surveillance system. When this is the case, such changes will take effect in the *NetGuard EVS* the first time you log in after the changes were made. Such changes may occasionally require you to re-create your views. Ask your system administrator if in doubt.
Once you have created views in the *NetGuard EVS*, you are able to add content to the views.

Note: Your ability to edit views—including adding content to the views—depends on your user rights. Basically, if you are able to create the view, you are also able to edit it.

Content can be video from individual cameras, *carousels* for viewing images from alternating cameras in a single view position, a *hotspot* for viewing selected camera images in high quality, static images (such as .gif, .jpeg, etc.), HTML pages, or NetMatrix-triggered video.

- ### Adding Individual Cameras

  To add a camera to a view, do the following:

  1. In the *Setup* tab's *Views* section, select the required view.

     When you select a view, the layout of the selected view is outlined in the main section of the *NetGuard EVS* window.

  2. In the *Setup* tab's *System Overview* section, click the plus sign ⊞ next to *Cameras*, then the plus sign ⊞ next to the required server to view a list of available cameras.

3. Select the required camera from the list, and drag the camera to the required position in the view.

When you have dragged a camera to a position in the view, an image from the camera will—provided a connection can be established—appear in the selected position. If a connection cannot be established, for example if the surveillance system's recording server is not running, the name of the camera will be displayed in the selected position.

When the camera position is selected, you are able to specify its properties in the *Setup* tab's *Properties* section; see Adjusting Camera Properties for detailed information.

4. Repeat for each camera required in the view.

Tip: If you want to use all of the cameras under a server, you may simply drag the required server link to the view; this will automatically place all of the server's cameras in the view *from the selected position onwards*. Make sure a sufficient number of positions are available in the view.

Tip: You can easily change which cameras are included in your view: Either clear an individual camera position by clicking the clear button ⊠, then drag another camera to the cleared position, or simply overwrite a position by dragging a different camera to the position.

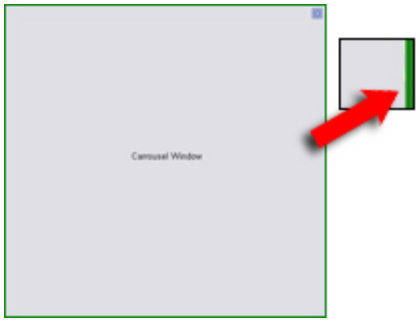
- ## Adding Carousels

A carousel is used for displaying images from several cameras, one after the other, in a single view position. You are able to specify which cameras to include in the carousel as well as the interval between camera changes.

To add a carousel to a view, do the following on the *Setup* tab:

1. Drag the *System Overview* section's *Carousel* link to the required position in the view.
2. Release the mouse button over the required position.

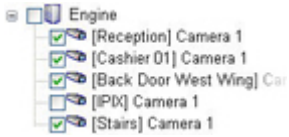
   Tip: Note that the position gets a thin green border. The green border indicates that the position is used for a carousel; the green border will also be evident when using the view on the *Browse* and *Live* tabs.



Thin green border indicates carousel

3. When the carousel position is selected, you are able to specify its properties in the *Setup* tab's *Properties* section.

   Begin by selecting which cameras to include in the carousel. In the following example, we have selected four cameras. Note that you are also able to select all cameras on a server in one go by selecting the check box next to the server icon.



   The sequence in which cameras will appear in the carousel is automatically determined by their names, which are typically made up along the structure *[Device name] Camera name*. The cameras will appear in alphabetical order (even if you select cameras from more than one server), then loop continuously.

   When you have selected cameras, specify the carousel's other properties, which are:

   - ***Image Quality***: Select between *Full* (default), *SuperHigh (for megapixel)*, *High*, *Medium* or *Low*. The setting will apply for all cameras included in the carousel.
   - ***Frame Rate***: Lets you select a frame rate for the carousel. Select between *Unlimited* (default), *Medium*, or *Low*. The setting will apply for all cameras included in the carousel.

The effect of your selection can be illustrated by the following table:

Effect	Unlimited	Medium	Low
JPEG	Send all frames	Send every 4th frame	Send every 20th frame
MPEG (IFrame)	Send all frames	Send all frames	Send all frames
MPEG (PFrame)	Send all frames	Do not send any frames	Do not send any frames

Example: If you set the *Frame Rate* option to *Low* in your *NetGuard EVS*, and your surveillance system administrator has configured a camera to feed JPEG images at a frame rate of 20 frames per second, you will experience an average of 1 frame per second when viewing video from the camera in the carousel. If your administrator had configured a camera with a feed as low as 4 frames per second, you would, with *Frame Rate* set to *Low* in your *NetGuard EVS*, experience an average of 0,2 frames per second when viewing video from the camera in the carousel.

- ***Maintain Image Aspect Ratio*:** If check box is selected, the cameras' original image aspect ratio will be maintained; this will provide you with non-distorted images, but may lead to black bars appearing above/below images. If check box is cleared, images will be stretched to fit the carousel; this may lead to slightly distorted images, but you will avoid any black bars appearing around the images. The setting will apply for all cameras included in the carousel.

- ***Interval (seconds)*:** Specify the interval between the carousel's camera changes. The setting will apply for changes between all the cameras included in the carousel; it is not possible to specify particular intervals for changes between particular cameras.

Tip: You are able to use several carousels in a single view.

- ## Adding Hotspots

With a hotspot, users will be able to select a camera in the view, and view enlarged and/or higher quality images from the selected camera in the view's hotspot.

For the hotspot you would usually select a one of the view's larger positions, for example the large position in a *1+7* view:

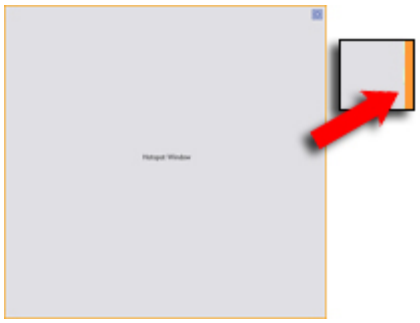
Advantages of Using a Hotspot
The fact that you can view enlarged images in the hotspot is not in itself what makes the hotspot useful; you can enlarge any image in a view by double-clicking the image.

What makes the hotspot useful is that with a hot spot you can use a *low image quality and/or frame rate* for cameras in the view's regular positions and a *high image quality and/or frame rate* for the hot spot. Then, only when users select a camera for viewing in the hotspot will it be displayed in high quality and/or high frame rate. This can really help you save bandwidth on the remote connection.

Adding the Hotspot
To add a hotspot to a view, do the following on the *Setup* tab:

1. Drag the *System Overview* section's *Hotspot* link to the required position in the view.
2. Release the mouse button over the required position.

Tip: Note that the position gets a thin orange border. The orange border indicates that the position is used for a hotspot; the orange border will also be evident when using the view on the *Browse* and *Live* tabs.



Thin orange border indicates hotspot

3. When the hotspot position is selected, you are able to specify its properties in the *Setup* tab's *Properties* section:

   - ***Image Quality*:** Select between *Full* (default), *SuperHigh (for megapixel)*, *High*, *Medium* or *Low*. The setting will apply for all cameras displayed in the hotspot.

   - ***Frame Rate*:** Lets you select a frame rate for the hotspot. Select between *Unlimited* (default), *Medium*, or *Low*. The setting will apply for all cameras included in the hotspot.

     The effect of your selection can be illustrated by the following table:

Effect	Unlimited	Medium	Low
JPEG	Send all frames	Send every 4th frame	Send every 20th frame
MPEG (IFrame)	Send all frames	Send all frames	Send all frames
MPEG (PFrame)	Send all frames	Do not send any frames	Do not send any frames

     Example: If you set the *Frame Rate* option to *Low* in your *NetGuard EVS*, and your surveillance system administrator has configured a camera to feed JPEG images at a frame rate of 20 frames per second, you will experience an average of 1 frame per second when viewing video from the camera in the hotspot. If your administrator had configured a camera with a feed as low as 4 frames per second, you would, with *Frame Rate* set to *Low* in your *NetGuard EVS*, experience an average of 0,2 frames per second when viewing video from the camera in the hotspot.

   - ***Maintain Image Aspect Ratio*:** If check box is selected, the cameras' original image aspect ratio will be maintained; this will provide you with non-distorted images, but may lead to black bars appearing above/below images. If check box is cleared, images will be stretched to fit the hotspot; this may lead to slightly distorted images, but you will avoid any black bars appearing around the images. The setting will apply for all cameras displayed in the hotspot.

- ## Adding Static Images

  Static images can be used in views for a variety of purposes: for company logos, for including floor plans or maps in the view, for including photos of wanted persons, etc.

  To add a static image to a view, do the following on the *Setup* tab:

  1. Drag the *System Overview* section's *Image* link to the required position in the view.
  2. Release the mouse button over the required position.

     When you release the mouse button, you are able to select the required static image file.

- ## Adding HTML Pages

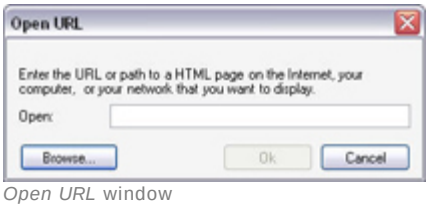
Static images can be used in views for a variety of purposes: for including company web pages, navigation pages, online map services, link collections, e-learning pages, etc.

Tip: When an imported HTML page contains links, it is highly recommended that the links have the `target='blank'` attribute (example: `<a href="otherwebpage.htm" target="blank">Link</a>`). This will make the links open in separate windows, which will help you avoid losing view of the *NetGuard EVS* window itself due to a link opening a web page in the same browser window as the *NetGuard EVS*.

To add an HTML page to a view, do the following on the *Setup* tab:

1. Drag the *System Overview* section's *HTML Page* link to the required position in the view.

   When you release the mouse button over the required position, the *Open URL* window opens:


Open URL
Enter the URL or path to a HTML page on the Internet, your computer, or your network that you want to display.
Open:
Browse...
Ok
Cancel

Open URL window

2. In the *Open URL* window's *Open* field, type the URL of the required HTML page (example: http://www.mywebsite.com/mywebpage.htm).

   - or -

   If the HTML page is stored locally on your computer, specify its location on your computer (example: C:\myfiles\mywebpage.htm), or click the *Browse...* button to browse for the required HTML page.

3. Click the *OK* link.

Changing the Properties of an HTML Page

Once an HTML page is added to a view, you are able to change its properties by doing the following:

4. On the *Setup* tab, select the imported HTML page in the view.

Properties of the selected HTML page will appear in the *Setup* tab's *Properties* section.

5. Change the required property:

   - ***Url*:** Click the *New* button to specify a new URL or location of the required HTML page.
   - ***Scaling*:** Select the required scaling of the HTML page. The optimal scaling depends entirely on the content of the imported HTML page and how you want to display it.

     As a rule of thumb, with a high scaling value, e.g. 1280×1024, text on the HTML page will appear relatively small, and a considerable amount of content will be visible without the need for scrolling. With a low scaling value, e.g. 320×200, text on the HTML page will appear relatively large, and a relatively small amount of content can be displayed without the need for scrolling.

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Examples of the same HTML page viewed with different scaling values

- ***Enable HTML scripting*:** Select *only* if the HTML page is a custom-made HTML page to be used for navigating or triggering features inside the *NetGuard EVS* itself (see examples of such custom-made HTML pages in Using an HTML Page for NetGuard EVS Navigation).

  If selected, a client script required for navigating and controlling a number of features inside the *NetGuard EVS* will be added to the HTML page. For HTML pages which are not going to be used for such purposes, the client script cannot be used, and may even cause the HTML page to malfunction.

Navigating the HTML Page
The HTML page can be navigated using the links on the HTML page itself.

Furthermore, each HTML page in a view will feature four navigation buttons in the top bar:

From left to right the buttons are: *Back*, *Forward*, *Refresh* and *Home*.

- ## Adding NetMatrix Content

NetMatrix is an integrated product that allows distributed viewing of video from any surveillance system camera to any monitor (known as a NetMatrix recipient) on a network. With a typical NetMatrix configuration, live images are automatically presented on the required NetMatrix recipient when defined events occur, for example when motion is detected, or when another user wishes to share important live images.

Provided NetMatrix has been configured on the surveillance system server, you are able to include NetMatrix content in your *NetGuard EVS* views. Thus, when particular events occur, or another user wishes to share important occurrences with you, live images from particular cameras will automatically appear in your views' NetMatrix positions.

Which events or cameras are used in the NetMatrix setup depends entirely on the surveillance system server's NetMatrix configuration, or on what other users wish to share with you; you are not able to control this in the *NetGuard EVS*. However, you are able to add NetMatrix content to as many view positions as required. This way you are able to watch live video from several NetMatrix-triggered sources at the same time.

If you create a view with several NetMatrix positions, the positions are always ranked. When the first video stream is received, NetMatrix automatically presents the video stream in the primary NetMatrix position in your view.

When the next video stream is received, a first-in-first-out principle begins to apply: NetMatrix quickly transfers the previously received video stream to your view's secondary NetMatrix position, and presents the latest video stream in your view's primary NetMatrix position, and so on. This way, you can always watch the latest video stream, while maintaining the last few previously received video streams in your view as well.

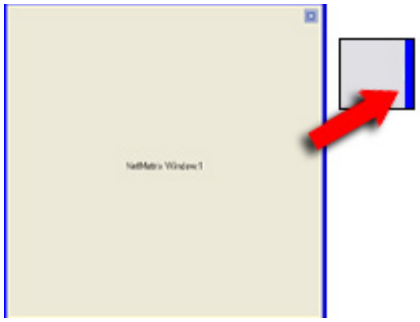
The positions' ranking is applied automatically: the first NetMatrix position you add to the view will automatically be the view's primary NetMatrix position, the next one you add will automatically be the

secondary one, etc. If required, you can manually change the NetMatrix positions' ranking in the *Setup* tab's *Properties* section.

To add NetMatrix content to a view, do the following on the *Setup* tab:

1. Drag the *System Overview* section's *NetMatrix* link to the required position in the view.
2. Release the mouse button over the required position.

   Tip: Note that the position gets a thin blue border. The blue border indicates that the position is used for NetMatrix content; the blue border will also be evident when using the view on the *Browse* and *Live* tabs.



Thin blue border indicates NetMatrix

3. When the NetMatrix position is selected, you are able to specify its properties in the *Setup* tab's *Properties* section:

   - ***Image Quality*:** Select between *Full* (the default setting), *SuperHigh (for megapixel)*, *High*, *Medium* or *Low*.
   - ***Frame Rate*:** Lets you select a frame rate for the NetMatrix position. Select between *Unlimited* (default), *Medium*, or *Low*. The setting will apply for all cameras included in the hotspot.

     The effect of your selection can be illustrated by the following table:

Effect	Unlimited	Medium	Low
JPEG	Send all frames	Send every 4th frame	Send every 20th frame
MPEG (IFrame)	Send all frames	Send all frames	Send all frames
MPEG (PFrame)	Send all frames	Do not send any frames	Do not send any frames

     Example: If you set the *Frame Rate* option to *Low* in your *NetGuard EVS*, and your surveillance system administrator has configured a camera to feed JPEG images at a frame rate of 20 frames per second, you will experience an average of 1 frame per second when viewing video from the camera in the NetMatrix position. If your administrator had configured a camera with a feed as low as 4 frames per second, you would, with *Frame Rate* set to *Low* in your *NetGuard EVS*, experience an average of 0,2 frames per second when viewing video from the camera in the NetMatrix position.

   - ***Maintain Image Aspect Ratio*:** If check box is selected, the cameras' original image aspect ratio will be maintained; this will provide you with non-distorted images, but may lead to black bars appearing above/below images. If check box is cleared, images will be stretched to fit the NetMatrix position; this may lead to slightly distorted images, but you will avoid any black bars appearing around the images. This setting will apply for all cameras displayed in the selected NetMatrix position.
   - ***NetMatrix Window*:** Lets you change the NetMatrix position's ranking. *1* is the primary position in which images from the latest event are always shown, *2* is the secondary position in which images from the previously detected event are always shown, *3* is the

tertiary position in which images from the event detected before the event in position *2* are always shown, and so on. The selected number cannot be higher than the total number of NetMatrix positions in the view: If the view only contains one NetMatrix position, the position must have number 1; if the view contains, for example, four NetMatrix positions, they must be numbered from 1 to 4.

- ***Connection Settings...*:** Button only available when the view's NetMatrix position *1* is selected; other NetMatrix positions in the view inherit the connection settings specified for position *1*. Clicking the *Connection Settings...* button lets you specify the *TCP Port* and *Password* used when transferring NetMatrix-triggered images from the surveillance server to the *NetGuard EVS* view. By default, the TCP port used for NetMatrix is 12345; consult your surveillance system administrator if in doubt about which port number or password to use.

4. Repeat if more NetMatrix positions are required in the view.

Further Configuration

In the *Setup* tab's *Properties* section, you are able to adjust a number of settings for individual cameras. To adjust a camera's properties, select the required camera in the view (the selected position will be indicated by a bold border), then make the adjustments in the *Properties* section.

Note: Particular user rights may be required in order to access the *Setup* tab.

- ### Camera Name

  The *Camera Name* field displays the name of the selected camera. The field is read-only.

- ### Image Quality

  The *Image Quality* setting determines the quality of the images when viewed, but also affects bandwidth usage.

  If the *NetGuard EVS* is used over the internet, over a slow network connection, or if for other reasons you need to limit bandwidth use, image quality can be reduced on the server side by selecting e.g. *Low* or *Medium*

  Tip: You can quickly reduce the bandwidth usage for all cameras in the view by reducing the image quality for a single camera, then clicking the *Apply To All* button.

- ### Frame Rate

  Lets you select a frame rate for the selected camera. Select between *Unlimited* (default), *Medium*, or *Low*.

  The effect of your selection can be illustrated by the following table:

Effect	Unlimited	Medium	Low
JPEG	Send all frames	Send every 4th frame	Send every 20th frame
MPEG (IFrame)	Send all frames	Send all frames	Send all frames
MPEG (PFrame)	Send all frames	Do not send any frames	Do not send any frames

  Example: If you set the *Frame Rate* option to *Low* in your *NetGuard EVS*, and your surveillance system administrator has configured the camera to feed JPEG images at a frame rate of 20 frames per second, you will experience an average of 1 frame per second when viewing video from the camera on your *NetGuard EVS client*'s *Live* tab. If your administrator had configured the camera with a feed as low as 4 frames per second, you would, with *Frame Rate* set to *Low* in your *NetGuard EVS*, experience an average of 0,2 frames per second when viewing video from the camera on the *Live* tab.

- ### IPIX Split Mode

  Available only if the selected camera is an IPIX camera. IPIX is a technology that allows creation and viewing of 360-degree panoramic images. The *NetGuard EVS* supports up to four different viewpoints from a single IPIX camera.

  The IPIX Split Mode list lets you select the required spilt mode:

  - ***One by One*** lets you view a single viewpoint.
  - ***Two by Two*** lets you view four different viewpoints at a time.

  When viewed on any of the *NetGuard EVS client*'s tabs, the IPIX camera will appear as specified, with either one or four viewpoints from the same image:

  Tip: When viewing different viewpoints from an IPIX camera on the *Live* or *Browse* tabs, you are able to navigate each viewpoint independently by clicking inside each viewpoint, or by using the buttons in the *Live* or *Browse* tabs'*PTZ Control* sections.

- ### Maintain Image Aspect Ratio

  If check box is selected, images will not be stretched to fit the size of the camera position. Rather, images will be displayed with the aspect ratio with which they have been recorded.

  This may result in horizontal or vertical black bars appearing around the images from some cameras.

  If check box is cleared, images will be stretched to fit the position in the view; this may lead to slightly distorted images, but you will avoid any black bars appearing around the images.

  Example: The same image viewed with *Maintain Image Aspect Ratio* selected (left) and cleared (right)

- ### Only Update Image on Motion

  If selected, the camera's images will only be updated on the *NetGuard EVS client*'s *Live* tab when motion is detected.

  Depending on the camera's motion detection sensitivity (configured on the surveillance system server) this can help reduce CPU usage significantly.

  If the camera's images are only updated on motion, users will see the message *No motion* together with a still image in the camera's view position until motion is detected.

- ### Sound on Motion Detection

  When images from the camera are viewed on the *Live* tab, it is possible to get a simple sound notification when motion is detected.

  - ***Always off*:** Do not use sound notifications on detected motion.
  - ***Always on*:** Play a sound notification each time motion is detected on the camera.

Will I receive lots of sound notifications? If you select *Always on*, the amount of motion-related sound notifications you are likely to receive will depend on the motion detection sensitivity of the camera in question. If motion detection for the camera is highly sensitive, you may at times receive very frequent sound notifications. The camera's motion detection sensitivity is configured on the surveillance system server; consult your surveillance system administrator if in doubt. If you select sound notifications for more than one camera, you may also hear more notifications—again depending on the cameras' motion detection sensitivity.

Tip: By default, the *NetGuard EVS* uses a simple sound file for its sound notifications. The sound file, called *Notification.wav*, is located in the *NetGuard EVS* installation folder*t*. If you want to use another .wav file as your notification sound, simply name the required file *Notification.wav* and place it in the *NetGuard EVS* installation folder instead of the original file. The file *Notification.wav* is used for event as well as motion detection notifications; it is not possible to use different sound files for different cameras or to distinguish between event and motion detection notifications.

- ### Sound on Event

Note: This feature is only available if using your *NetGuard EVS* with certain surveillance systems; see Surveillance System Differences. Even when using your *NetGuard EVS* with a surveillance system supporting this feature, being able to use this feature requires that notifications on events have been configured on the surveillance system server. Consult your surveillance system administrator if in doubt.

When images from the camera are viewed on the *Live* tab, it is possible to get a simple sound alert when events related to the selected camera occur.

- ***Always off*:** Do not use sound alerts when events related to the camera occur.
- ***Always on*:** Play a sound alert each time an event related to the camera occurs.

What is an event? An event is a predefined incident occurring on the surveillance system. Depending on the surveillance system's configuration, events may be caused by input from external sensors connected to cameras, by detected motion, by data received from other applications, or manually through user input. Events are used by the surveillance system for triggering *actions*. Typically, most events on the surveillance system are generated automatically. For example, detected motion can be defined as an event which in turn triggers an action, such as recording on a camera.

Will I receive lots of sound notifications? If you select *Always on*, the amount of event-related sound notifications you are likely to receive will depend on the nature and number of events related to the camera in question. Events are configured on the surveillance system server; consult your surveillance system administrator if in doubt. If you select sound notifications for more than one camera, you may also hear more notifications—again depending on the surveillance system's event configuration.

Tip: By default, the *NetGuard EVS* uses a simple sound file for its sound notifications. The sound file, called *Notification.wav*, is located in the *NetGuard EVS* installation folder. If you want to use another .wav file as your notification sound, simply name the required file *Notification.wav* and place it in the *NetGuard EVS* installation folder instead of the original file. The file *Notification.wav* is used for event as well as motion detection notifications; it is not possible to use different sound files for different cameras or to distinguish between event and motion detection notifications.

- **Apply to All**

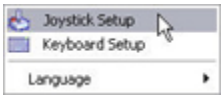
  The *Apply To All* button lets you quickly apply the camera settings for the selected camera to all cameras in the view.

Note: Even though joystick control is supported for a large number of PTZ cameras, not all PTZ cameras may be joystick-controlled. Refer to the release note for information about joystick support for cameras.

When a new joystick is detected by the *NetGuard EVS*, a default PTZ (Pan/Tilt/Zoom) configuration for the joystick is added automatically. However, you are able to customize the setup for all joysticks attached to the computer running the *NetGuard EVS*.

To customize joystick setup, do the following:

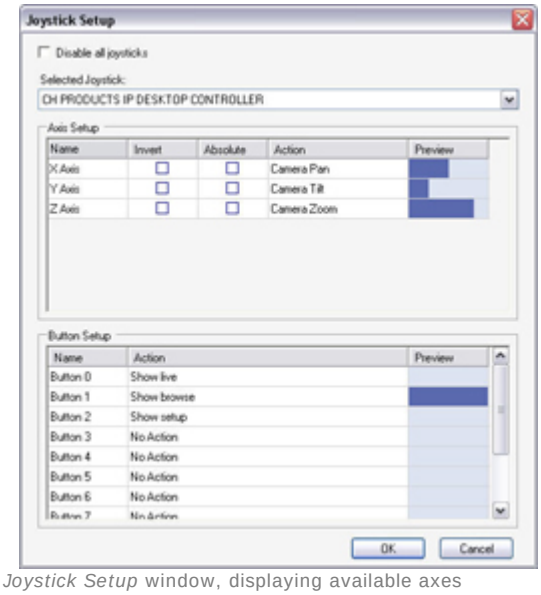
1. Click the *Show Application Menu* button in the right side of the *NetGuard EVS client*'s top bar.
2. From the menu that appears, select *Joystick Setup*:



   The *Joystick Setup* window appears.

3. In the *Joystick Setup* window, select the required joystick in the *Selected Joystick* list.

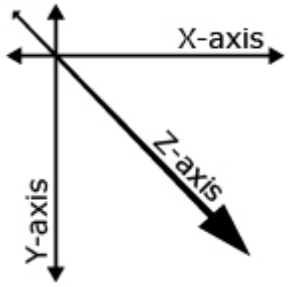
   The axes and buttons available on the selected joystick will be listed in the *Axis Setup* and *Button Setup* sections respectively:



Joystick Setup window, displaying available axes and buttons on a selected joystick

4. In the *Axis Setup* section, specify settings for the available axes.

   With a joystick, you are typically able to navigate camera images three-dimensionally, along three axes: an X-axis, a Y-axis, and a Z-axis, where the Z-axis typically refers to the depth (zoom) level:



Example: X-, Y-, and Z-axes

   - ***Invert*:** By default, a PTZ camera will move to the right when you move the joystick to the right along the X-axis, move up when you move the joystick towards you along the Y-axis, etc. By selecting *Invert*, you are able to change this to the opposite. You are thus able to freely determine whether the camera should, for example, move up or down when you move the joystick towards you and away from you respectively.

   - ***Absolute*:** By default, joystick control takes place based on a relative positioning scheme. This means that moving a joystick will move the joystick-controlled object based on the object's current position rather than based on any fixed position. By selecting *Absolute*, you are able to change this and use an absolute rather than a relative positioning scheme.

   - ***Action*:** Lets you select the required action for an axis: *Camera Pan*, *Camera Tilt*, *Camera Zoom*, or *No action*.

   - ***Preview*:** Lets you quickly test the effect of your selections. When you have selected an action for the axis you want to test, simply move the joystick along the required axis to view the effect, indicated by a movement of the dark blue bar.

5. In the *Button Setup* section, specify an action for each required joystick button.

   You select the required action in the *Action* column.

   Tip: To quickly verify that you are configuring the required button, simply press the required button on the joystick. When the button is pressed, a dark blue color will appear in the *Button Setup* section's *Preview* column for the button in question.

Disabling Joystick Use
To disable the use of joysticks on your *NetGuard EVS*, select the *Joystick Setup* window's *Disable all joysticks* check box.

Joystick Setup is Tied to User Login on Particular Computer
Unlike your views and custom keyboard settings, which are simply tied to your user login and can therefore be used on any computer with a *NetGuard EVS*, your joystick setup will be tied to your user login *as well as* to the specific computer on which you configured the joystick setup.

This means that your joystick setup will only work on the computer on which is has been configured. The simple reason for this is that different computers are likely to have different joysticks attached.

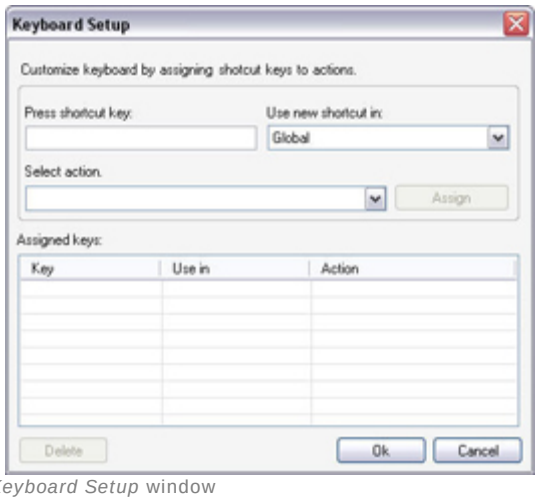
If you want to use a joystick with the *NetGuard EVS* on more than one computer, you must configure the *NetGuard EVS client*'s joystick setup on each computer.
You are able to assign your own custom shortcut key combinations to particular actions in the *NetGuard EVS*.

Tip: The *NetGuard EVS* also features a small number of standard keyboard shortcuts, immediately ready for use. See Using Standard Keyboard Shortcuts for more information.

To assign custom shortcut key combinations, do the following:

1. Click the *Show Application Menu* button in the right side of the *NetGuard EVS client*'s top bar.
2. From the menu that appears, select *Keyboard Setup*:

The *Keyboard Setup* window appears:



Keyboard Setup window

3. When the *Keyboard Setup* window appears, click inside the *Press shortcut key* field, then press the required key combination.

Note: Custom key combinations must begin with CTRL or ALT. Example: CTRL+B (i.e. first pressing the CTRL key, then—while still pressing the CTRL key—pressing the B key).

This will display the pressed key combination in the *Press shortcut key* field.

4. In the *Select action* list, select the required action for the shortcut key combination.

Note: Some actions will only work when the keyboard shortcut is used in certain contexts. For example, a keyboard shortcut with a PTZ-related action will only work when using a PTZ camera.

5. In the *Use new shortcut in* list, select when the shortcut key combination should apply:

- ***Global*:** When working on any of the *NetGuard EVS client*'s three tabs (*Live*, *Browse*, and *Setup*).
- ***Browse Mode*:** When working on the *NetGuard EVS client*'s *Browse* tab only.
- ***Live Mode*:** When working on the *NetGuard EVS client*'s *Live* tab only.
- ***Setup Mode***: When working on the *NetGuard EVS client*'s *Setup* tab only.

6. Click the *Assign* button.

   This will add the specified shortcut key combination to the *Assigned keys* list:

Key	Use in	Action
B, Control	Browse Mode	Browse Next Image
D, Control	Global	Toggle Side Pane
Delete, Alt	Global	Show keyboard setup
Q, Alt	Global	Close the application
Z, Control, Alt	Live Mode	Camera PTZ Zoom In

Example of user-defined keyboard shortcuts

7. Click *OK*.

Tip: Your shortcut key combinations are kept as part of your user settings on the surveillance system server. This means that you will be able to use your shortcut key combinations on any computer that has a *NetGuard EVS* installed, provided you log in to the *NetGuard EVS* with your own user name and password.

Deleting a Shortcut Key Combination
To delete an existing keyboard shortcut from the *Assigned keys* list, simply select the unwanted shortcut in the list, then click the *Delete* button.
In the *NetGuard EVS*, you are able to select between several language versions.

To select a language, do the following:

1. Click the *Show Application Menu* button in the right side of the *NetGuard EVS client*'s top bar.

2. From the menu that appears, select *Language*, then the required language:

3. The *NetGuard EVS* must be restarted in order for the change to take effect. Close your *NetGuard EVS*, then log in again to use the new language version.

In addition to displaying images from cameras, the *NetGuard EVS* is able to display static images and HTML pages. Such HTML pages may be used for intuitively switching between different views in the *NetGuard EVS*.

For example, you may insert a clickable floor plan of a building, and you would be able to simply click a part of the floor plan to instantly switch to a view displaying images from the required part of the building.

In the following, you will see examples of HTML pages for *NetGuard EVS* navigation: a simple HTML page with buttons, and a more advanced HTML page with a clickable image map. For surveillance system administrators wishing to create and distribute such HTML pages to *NetGuard EVS* users, a check list outlining the tasks involved is also provided.

Tip: The *NetGuard EVS* is highly flexible when it comes to customizing navigation and other features. For advanced users it is possible to create approximately 100 different function calls in the *NetGuard EVS*. See NetGuard EVS Scripting for more information.

- ## Example of an HTML Page with Button Navigation

A very quick solution is to create an HTML page with buttons for navigation. You are able to create a wide variety of buttons on the HTML page. In this example, we will just create two types of buttons:

- **Buttons for switching between the *NetGuard EVS client*'s views**

  Required HTML syntax:

  ```
  <input type="button" value="Buttontext"
  onclick="SCS.Views.SelectView('Viewstatus.Groupname.Viewname');">
  ```

  Where *Viewstatus* indicates whether the view is shared or private (if the HTML page is to be distributed to several users, the view *must* be shared).

  Example from a real button:

  ```
  <input type="button" value="Go to Shared Group1 View2"
  onclick="SCS.Views.SelectView('Shared.Group1.View2');">
  ```

  This button would allow users to go to a view called *View2* in a shared group called *Group1*.

- **Buttons for switching between the *NetGuard EVS client*'s three tabs: *Live*, *Browse* and *Setup***

  Bear in mind that, depending on their user rights, some users may not be able to access all three tabs.

  Required HTML syntax:

  ***Live* tab:**`<input type="button" value="Buttontext"`
  `onclick="SCS.Application.ShowLive();">`

  ***Browse* tab:**`<input type="button" value="Buttontext"`
  `onclick="SCS.Application.ShowBrowse();">`

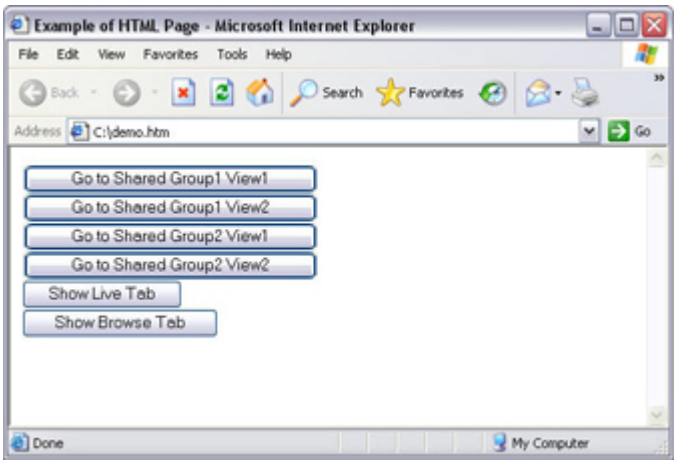
  ***Setup* tab:**`<input type="button" value="Buttontext"`
  `onclick="SCS.Application.ShowSetup();">`

Tip: For advanced users it is possible to create many other types of buttons using the approximately 100 different function calls available for the *NetGuard EVS*. See NetGuard EVS Scripting for more information.

In the following we have created two shared groups in the *NetGuard EVS*. We have called them *Group1* and *Group2*. Each group contains two views, called *View1* and *View2*.:

We have also created an HTML page with buttons allowing users to switch between our four different views as well as between two of the *NetGuard EVS*'s tabs, *Live* and *Browse*.

When viewed in a browser, our HTML page looks like this:



HTML page with buttons for navigating between views and tabs

We have saved the HTML page locally, in this case on the user's C: drive. When the HTML page is to be used for navigation, saving the HTML page locally is necessary because of security features in Internet Explorer.

When saving the HTML page locally, save it at a location to which an unambiguous path can be defined, for example in a folder on the user's C: drive (example: C:\myfolder\file.htm). Saving the HTML page on the user's desktop or in the user's *My Documents* folder will not work properly due to the way Windows constructs the path to such locations.

We then imported the HTML page into the required *NetGuard EVS* views. When importing the HTML page, we made sure to select *Enable HTML scripting* in the HTML page's *Properties* on the *Setup* tab.

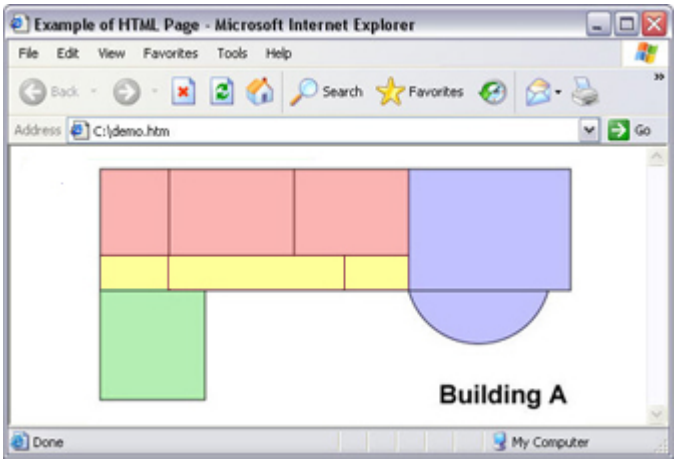
Selecting *Enable HTML scripting* ensures that the scripting required for the buttons to work is automatically inserted in the HTML page.

- ### Example of an HTML Page with Image Map Navigation

You may also create an HTML page with more advanced content, for example an image map allowing users to switch between views.

In the following example we have kept the two groups and two views from the previous example.

Instead of using buttons, we have created an HTML page with an image of a floor plan, and created an image map based on the floor plan. Viewed in a browser, our HTML page looks like this:



HTML page with image map for navigating between views

How you structure and create an image map is of course highly individual. For this example, we divided the floor plan into four colored zones, and defined an image map area for each zone. This way, users will be able to simply click a zone in order to go to the view displaying cameras from that zone.

For instance, the red zone on our image map mirrors the *Go to Shared Group2 View2* button from the previous example: When clicking inside the red zone, users will go to View2 in Group2.

- ### Importing the HTML Page

Importing a navigation HTML page into a view is in principle no different from importing any other type of HTML page into a view in the *NetGuard EVS*. The two important things to remember are:

- The HTML page should be stored locally on the user's PC
- You should make sure HTML scripting is enabled on the HTML page when importing it

To import the HTML page, do the following:

1. Go to the *NetGuard EVS client*'s *Setup* tab.
2. From the *Setup* tab's *System Overview* section, drag the *HTML Page* link to the required position in the required view.
3. This will open the *Open URL* dialog, in which you specify the required HTML page.
4. Having imported the HTML page, select its position in the view, and go to the *Setup* tab's *Properties* section.
5. In the *Properties* section, select *Enable HTML Scripting*.

   Selecting *Enable HTML Scripting* ensures that the scripting required for your buttons or other navigation features to work is automatically inserted in the HTML page.

6. Depending on the navigation features you have included on your HTML page, you may often want to import the HTML page into several views in order for the navigation to fully work.

- ### System Administrator's Check List

Surveillance system administrators wishing to create and distribute navigation HTML pages to *NetGuard EVS* users, do the following:

1. **Create** the required HTML page. The navigation controls in the HTML page must match the views users see in their *NetGuard EVS.* For example, in order for a button leading to View1 to work, a view called View1 must exist in users' *NetGuard EVS*. If you intend to distribute the HTML page to a group of users, the views in which the HTML page will be used should be placed in shared groups.
2. **Save** the HTML page locally on each computer on which it will be used. When saving the HTML page locally, save it at a location to which an unambiguous path can be defined, for example in a folder on the user's C: drive (example: C:\myfolder\file.htm). Saving the HTML page on the user's desktop or in the user's *My Documents* folder will not work properly due to the way Windows constructs the path to such locations.
3. **Import** the HTML page into the *NetGuard EVS* views in which it will be used.
4. **Test** that the navigation controls on the imported HTML page work as intended.
5. **Enjoy** simple and intuitive *NetGuard EVS* navigation, tailored to meet your organization's needs. For advanced users it is possible to create function calls in the *NetGuard EVS*. Note that the use of scripting will require some familiarity with programming.

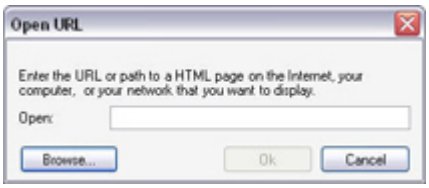
- ## Viewing a List of Possible Function Calls

To view a list of the approximately 100 different function calls you are able to use in the *NetGuard EVS*, do the following on the *NetGuard EVS client*'s *Setup* tab:

1. Drag the *System Overview* section's *HTML Page* link to a position in a view.

   Tip: Preferably use a 1×1 view; this will give you the best possible overview of the list's content.

   When you release the mouse button over the required position, the *Open URL* window opens:


Open URL
Enter the URL or path to a HTML page on the Internet, your computer, or your network that you want to display.
Open:
Browse...
Ok
Cancel

Open URL window

2. In the *Open URL* window's *Open* field, type *about:script* and click *OK*.

   This will display the list of function calls. Each function call will be listed with a short description of its purpose; and you will be able to try out many of the function calls straight from the list.

- ## Startup Scripting

It is possible to use scripting to control parts or all of the *NetGuard EVS* login procedure. Examples:

- If using the authentication methods *Basic authentication* or *Windows authentication*, you can make the *NetGuard EVS* login dialog open with pre-filled *Server address* and *User name* fields, in which case the user merely has to enter a password in order to log in.

- If using the authentication method *Windows authentication (current user)*, you can make the *NetGuard EVS* connect to the surveillance system automatically, based on the user's current Windows login.

Note: Some authentication methods are only available if the *NetGuard EVS* user logs in to certain surveillance systems; see Surveillance System Differences.

Parameters
You are able to use the following parameters:

ServerAddress

Refers to the URL of the server to which the *NetGuard EVS* should connect (if connecting to a OnSSI NetEVS system, this would be the URL of the Management Server; if connecting to a NetDVMS or NetDVR system, it would be the URL of the Image Server).

The following example would show the *NetGuard EVS client*'s login dialog with *http://ourserver* in the dialog's *Server address* field:

```
Client.exe -ServerAddress "http://ourserver"
```

Keep in mind that the *NetGuard EVS*'s default authentication type is *Windows authentication (current user)*. Unless you change this, through using the *AutheticationType* parameter (described in the following), the login dialog will look like this from the user's point of view, i.e. automatically displaying the name of the current Windows user in the *User name* field:

UserName

Refers to a specific user name.

The following example would show the *NetGuard EVS client*'s login dialog with *http://ourserver* in the dialog's *Server address* field, and *Tommy* in the dialog's *User name* field:

```
Client.exe -ServerAddress "http://ourserver" -UserName "Tommy"
```

Note: The *UserName* parameter is relevant only for the authentication methods *Windows authentication* and *Basic authentication*. You use the *AuthenticationType* parameter (described in the following) to control which authentication method to use.

Password

Refers to a specific password.

The following example would show the *NetGuard EVS client*'s login dialog with *http://ourserver* in the dialog's *Server address* field, *Tommy* in the dialog's *User name* field, and *T0mMy5Pa55w0rD* in the dialog's *Password* field:

```
Client.exe -ServerAddress "http://ourserver" -UserName "Tommy" -Password
"T0mMy5Pa55w0rD"
```

Note: The *Password* parameter is only relevant if using the authentication methods *Windows authentication* and *Basic authentication*. You use the *AuthenticationType* parameter (described in the following) to control which authentication method to use.

AuthenticationType

Refers to one of *NetGuard EVS client*'s three possible authentication methods: *Windows authentication (current user)* (called *WindowsDefault* in startup scripts), *Windows authentication* (called *Windows* in startup scripts), or *Basic authentication* (called *Simple* in the startup scripts).

The following example would show the *NetGuard EVS client*'s login dialog with *http://ourserver* in the dialog's *Server address* field, *Basic authentication* selected in the dialog's *Authentication* field,*Tommy* in the dialog's *User name* field, and *T0mMy5Pa55w0rD* (masked by asterisks) in the dialog's *Password* field:

```
Client.exe -ServerAddress "http://ourserver" -UserName "Tommy" -Password
"T0mMy5Pa55w0rD" -AuthenticationType Simple
```

From the user's point of view, the called login dialog would look like this:

If we were to use *Windows authentication*, the example would be:

```
Client.exe -ServerAddress "http://ourserver" -UserName "Tommy" -Password
"T0mMy5Pa55w0rD" -AuthenticationType Windows
```

If we were to use *Windows authentication (current user),* the *UserName* and *Password* parameters would not be necessary, and the example would look like this:

```
Client.exe -ServerAddress "http://ourserver" -AuthenticationType WindowsDefault
```

Script

Refers to a full path to an .scs script (a script type targeted at controlling the *NetGuard EVS*).

The following example uses an .scs script to login:

```
Client.exe -Script c:\startup.scs
```

Example of an .scs script for logging in to *http://ourserver* with the current Windows user:

```
<ScriptEngine>
  <Login>
    <ServerAddress>http://ourserver</ServerAddress>
    <AuthenticationType>WindowsDefault</AuthenticationType>
  </Login>
</ScriptEngine>
```

You are able to use many of the *NetGuard EVS client*'s function calls (see *Viewing a List of Possible Function Calls* elsewhere in this topic) to add further functionality to .scs scripts. In the following example, we have added a line so the .scs script from the previous example will log in to *http://ourserver* with the current Windows user, then minimize the *NetGuard EVS* application:

```
<ScriptEngine>
  <Login>
    <ServerAddress>http://ourserver</ServerAddress>
    <AuthenticationType>WindowsDefault</AuthenticationType>
  </Login>
  <Script>SCS.Application.Minimize()</Script>
</ScriptEngine>
```

Format
Valid parameter formats are:

```
{-,/,--}param{ ,=,:}(".')value(",'))
```

Examples:

```
-UserName Tommy
--UserName Tommy
```

```
/UserName:"Tommy"
/Username=Tommy -Password 'Tommy'
```

Day-to-Day Use

With the *NetGuard EVS* you are able to quickly export video evidence in the AVI (movie clip), JPEG (still image) and the surveillance system database formats.

Note: Depending on your user rights, access to exporting AVI, JPEG and database evidence from some or all cameras may be restricted.

- ## Exporting in AVI and JPEG Formats

To export video evidence in the AVI or JPEG formats, do the following:

Note: Date and time formats used when browsing recorded images may vary depending on your computer's regional settings.

1. Select the *NetGuard EVS*'s *Browse* tab.
2. In the *Browse* tab's *Export* section, specify when the period to be covered by the export should start. You do this by typing the required date in the first *Start Time* field and the time in the second field.

   Tip: Instead of manually specifying date and time, you may use the *Browse* tab's *Time Navigation* features to move to the required start point, then click the upper of the *Export* section's *Set* buttons. This will automatically set the date and time of the viewed image in the *Start Time* fields.
3. In the *End Time* fields, specify end date and time for the export. You may use the *Set* button as described above.
4. Select the required camera from the *Source* list. You must select an individual camera from the list as your source; the *Current View Sources* option only applies when exporting in the database format.
5. Click the *AVI/JPEG Export...* button. This will open a separate export dialog.

   The export dialog will list the specified start time, end time, and camera.

6. In the export dialog's *Export Type* section, select the required export format: *AVI* (movie clip) or *JPEG* (still images).
7. Select whether to add timestamps from the surveillance system to the exported images.

If selected, small timestamps will appear in the corner of the images:

Example of timestamp; arrow indicates actual position.
Date and time format may be different on your computer.

8. ***This step applies for export in the AVI format only; if using the JPEG format, go to step 9***
Select required frame rate for the export. With the *Full* option, all images between the start and end times will be included in the export; with the *Half* option, only every second image will be included, yet still play back in real-time.

9. If you used digital zoom on the camera's images before exporting, you are able to export the digitally zoomed images rather than the regular images. Select *Yes* if you want to export the digitally zoomed images, select *No* if you want to export the camera's regular, non-zoomed, images.

If you did not use digital zoom before exporting, this option will not be available.

10. ***This step applies for export in the AVI format only; if using the JPEG format, go to step 11***
In the *AVI Codec* list, select required AVI codec. The list will contain the video codecs available on your PC.

Tip: A video codec is a particular compression/decompression technology used when generating video files. Your choice of codec will affect the quality and size of the AVI file. The Indeo® video 5.10 codec, if available on your PC, generally provides a very good compromise between quality and file size.

11. Specify export destination in the export dialog's *Export Destination* section.

- ***Desktop*:** If you select *Desktop*, your exported file will be saved in an automatically created *Exported Images* folder on the desktop of your PC.

- ***Path*:** If you select *Path*, you are able to specify a path yourself. The exported file will be saved in an automatically created *Exported Images* folder under the path you specify (example: If you specify a path like C:\My Stuff\My Files, the exported file will be saved in C:\My Stuff\My Files\Exported Images). When specifying a path this way, the folders you specify do not have to be existing ones; if they do not already exist, they will be created automatically.

12. ***This step applies for export in the AVI format only; if using the JPEG format, go to step 13***
By default, the AVI file will get a file name based on the export start time in the 24-hour format, along the structure yyyymmdd-hhmmss.avi (year, month, day, hour, minute, second; example: 20050927-130603 for a file with a start time of 13:06:03 on 27th September 2005). The name will automatically appear in the *AVI FileName* field.

The default file name format is independent of regional settings on your computer.

You are always able to change the default file name to a name of your choice, simply by overwriting the default file name.

13. Click the *Export* button to begin the export.

    The status bar in the upper part of the export dialog will display the status of the export:

Export status bar

Tip: If you are exporting very long sequences, export may—depending on your selected export settings—take a while. You can continue to use the *NetGuard EVS* for other purposes while the export process is underway.

If the *Close On Completion* check box is selected (default), the export dialog will automatically close when the export is finished.

Upon completion, you are able to view and distribute the exported file.

Example: AVI file viewed in the Winamp player; other common players include the Windows Media Player and the RealPlayer

- ## Exporting in Database Format

To export video evidence in the surveillance system database format, do the following:

Note: Date and time formats used when browsing recorded images may vary depending on your computer's regional settings.

1. Select the *NetGuard EVS client*'s *Browse* tab.
2. Select the view on which you want to base your export.

   Tip: You do not necessarily have to include all of the selected view's cameras in your export; later in the process you will be able to specify exactly what to include in the export.

3. In the *Browse* tab's *Export* section, specify when the period to be covered by the export should start. You do this by typing the required date in the first *Start Time* field and the time in the second field.

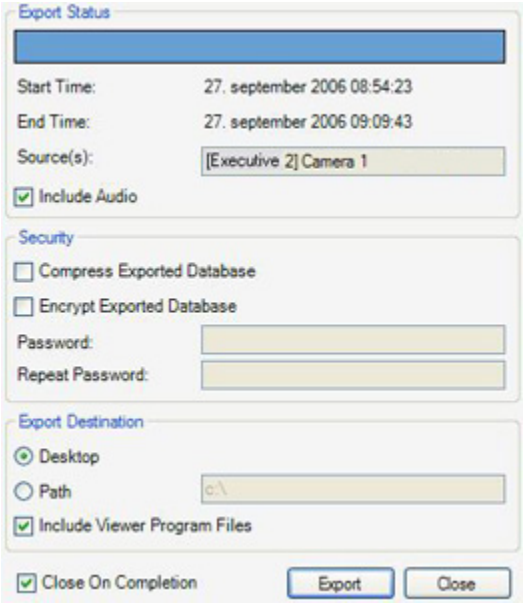
   Tip: Instead of manually specifying date and time, you may use the *Browse* tab's *Time Navigation* features to move to the required start point, then click the upper of the *Export* section's *Set* buttons. This will automatically set the date and time of the viewed image in the *Start Time* fields.

4. In the *End Time* fields, specify end date and time for the export. You may use the *Set* button as described above.

5. Select the required source from the *Source* list. You may select an individual camera, in which case only images from the selected camera will be included in the export, or *Current View Sources*, in which case the export will include images from all cameras in the current view for which you have database export rights.

   Tip: To quickly select an individual camera, you may also simply click the required camera slot in the view.

6. Click the *Database Export...* button. This will open a separate export dialog:



Export dialog. Date and time format may be different on your computer.

The export dialog will list the specified start time, end time, and source.

7. If the surveillance system supports audio, and the selected camera(s) have audio sources attached, you are able to include audio in the export by selecting the *Include Audio* check box (if no audio sources are attached, the check box will not be available).

8. If you want to compress the exported database, select the *Compress Exported Database* check box.

Compression can reduce the size of the exported database by approximately 10%. However, the database export process will take considerably longer when compression is used.

9. If you want to encrypt the exported database, select the *Encrypt Exported Database* check box.

If you select encryption, specify a password for subsequent decryption of the exported databases, and remember to send the password to the recipient *separately*.

Note that when encryption is used, the database export process as well as subsequent opening of the database in order to view its content will take considerably longer than when no encryption is used.

10. Specify export destination in the export dialog's *Export Destination* section.

- ***Desktop*:** If you select *Desktop*, your exported file will be saved in an automatically created *Exported Images* folder on the desktop of your PC.

- ***Path*:** If you select *Path*, you are able to specify a path yourself. The exported database will be saved in an automatically created *Exported Images* folder under the path you specify (example: If you specify a path like C:\My Stuff\My Files, the exported file will be saved in C:\My Stuff\My Files\Exported Images). When specifying a path this way, the folders you specify do not have to be existing ones; if they do not already exist, they will be created automatically.

11. If you want to include a stand-alone *Viewer* application in the database export, select the *Include Viewer Program Files* check box.

    If you include the *Viewer* application in the export, the exported databases can be viewed and browsed on any PC—no additional surveillance system software will be required. Read more about the *Viewer* application in Using the Viewer.

    Tip: A *Viewer* application included in a database export will, if possible, match the language version of your *NetGuard EVS*. If the *Viewer* application is not available in a matching language version, an English language version of the *Viewer* application will be included.

12. Click the *Export* button to begin the export.

The status bar in the upper part of the export dialog will display the status of the export:

Export status bar

Tip: If you are exporting very large databases, export may take a while. You can continue to use the *NetGuard EVS* for other purposes while the export process is underway.

If the *Close On Completion* check box is selected (default), the export dialog will automatically close when the export is finished.

You are now able to distribute the content of the *Exported Database* folder.

Tip: If you included the *Viewer* application in the export, double-clicking the file *Browser.exe* in the *Exported Images* folder will open the *Viewer* application, ready for viewing and browsing the exported database content.

Tip: If you included the *Viewer* application in your export, copying all files from the *Exported Images* folder to the root of a CD or DVD will make the CD/DVD start automatically when the recipient inserts it.

- ## Frequently Asked Questions about Exporting

Can I export audio as well? When exporting in the database format, you are—when the surveillance system supports audio—able to include audio in the export. When exporting in the AVI or JPEG formats, you cannot include audio.

Can I export digitally zoomed images? If you used digital zoom prior to exporting, you will, when exporting in the AVI or JPEG formats, be able to select whether to export the regular images or the digitally zoomed images. When exporting in the database format, it will not be necessary to make such a selection as recipients will be able to use digital zoom on the exported recordings.

Can I export IPIX recordings? Yes, provided your surveillance system supports the use of IPIX cameras (i.e. cameras using a special technology for recording 360° images). When exporting recordings from an IPIX camera, be aware that it is only possible to export the “fisheye” view itself; not a flattened IPIX view, a 2×2 split IPIX view, or zoomed IPIX views.

Message texts may under particular circumstances appear in white letters across one or more of a view's camera positions.

Example of camera message text

Possible messages (listed alphabetically) are:

- ***After Database End*:** Will appear on *Browse* tab only. Indicates that the time selected is after the time of the last recording in the camera's database. The last image in the camera's database will be shown in the camera position in order to indicate that recordings from the camera are available, but only from a time earlier than the selected time.

- ***Before Database Start***: Will appear on *Browse* tab only. Indicates that the time selected is before the time of the first recording in the camera's database. The first image in the camera's database will be shown in the camera position in order to indicate that recordings from the camera are available, but only from a time later than the selected time.

- ***Connected to [Device Name] [Camera Name] on [IP Address]:[Port Number]*:** Indicates that a connection to the camera has been established.

- ***Connecting to [Device Name] [Camera Name] on [IP Address]:[Port Number] ...***: Indicates that a connection to the camera is currently being established.

- ***Connection refused. Reason: ...*:** Indicates that connecting to the camera in question is not allowed, for example because your rights to access recordings from the camera have been changed by the surveillance system administrator. Consult your surveillance system administrator if in doubt.

- ***Connection to [Device Name] [Camera Name] on [IP Address]:[Port Number] lost!. Reconnecting ...*:** Indicates that connection to the camera has been lost, and that another connection attempt is currently being made.

- ***Connection to engine failed! Retrying ...*:** Indicates that a connection to the surveillance system server could not be established, and that another connection attempt is currently being made. This message may occur if connection to the surveillance system is temporarily lost. If your surveillance system consists of several interconnected servers, the message may also occur if the server from which you are requesting the camera's recordings is temporarily unavailable. If the problem persists, consult your surveillance system administrator.

- ***No images available for [Device Name] [Camera Name] on [IP Address]:[Port Number]. Database might be empty.*:** Will appear on *Browse* tab only. Indicates that it is not possible to show images from the camera; the very likely reason being that there are no recordings in the camera's database. Bear in mind that the settings determining when recordings from the camera are stored in the database are determined by the surveillance system administrator. Sometimes, the surveillance system administrator may specify that recordings should only be stored within particular time periods or when particular events occur. This may explain why you are perhaps able to view live images from the camera on the *NetGuard EVS client*'s *Live* tab, while at the same time you may find that no recordings have been stored for viewing on the *NetGuard EVS client*'s *Browse* tab.

- ***No motion*:** Indicates that motion is currently not detected in the camera's images; the images you see will not be updated until there is motion. This message will only appear if the surveillance system administrator has specified that images should only be updated when there is motion; a feature which can

help reduce server load and bandwidth consumption. Consult your surveillance system administrator if in doubt.

- ***Not connected:*** Indicates that it is not possible to connect to the camera, for example because the camera itself is disconnected from the network. Consult your surveillance system administrator if in doubt.

- ***Not initialized:*** Indicates that the camera is not in an operative state. Consult your surveillance system administrator if the problem persists.

- ***The server is running out of disk space*****:** Indicates that limited disk space is available on the surveillance system server. If more disk space is not made available on the surveillance system server, recording will be affected. Consult your surveillance system administrator.

- ***The server has encountered a database problem*****:** Indicates that a database problem has occurred on the surveillance server. Consult your surveillance system administrator, who will have access to tools for diagnosing surveillance server database problems.

- ***The server has lost connection to the camera*****:** Indicates that the surveillance server has lost connection to the camera. This may be a temporary issue, for example due to maintenance. Consult your surveillance system administrator if in doubt.

The *NetGuard EVS* supports use of multiple windows. This is especially useful if your computer has more than one physical display attached, but even when your computer has only one display you can send individual views to separate windows, while keeping the *NetGuard EVS client*'s main window in the background. This way, you can watch more than one view at a time.

You can send views to separate displays or windows from the *NetGuard EVS client*'s *Live* tab as well as its *Browse* tab.

- ### Sending a View to Primary Display

  Sending a view to *Primary Display* will show the view in a separate full-screen window on your computer's main display.

  Example of a view sent to the *Primary Display*. While you are viewing the separate full screen window, the main *NetGuard EVS* window will be hidden behind it.

  The separate full-screen window will only show the selected view, none of the *Live* or *Browse* tab's other features, and it can only show one view at a time.

  Any hotspots, carousels, NetMatrix positions, still images or HTML pages included in the view will work as usual.

  To send a view to *Primary Display*, do the following:

  1. In the *Live* or *Browse* tab's *Views* section, right-click the required view. This will bring up a menu.

2. In the menu, select *Send View To >Primary Display*.

- ## Sending a View to a Secondary Display

Sending a view to a *Secondary Display* will show the view in a full-screen window on another physical display (if available).

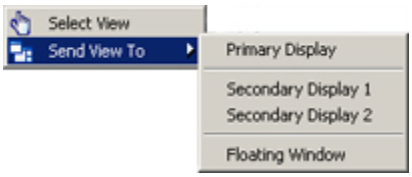
The other physical display will only show the selected view, none of the *Live* or *Browse* tab's other features, and it can only show one view at a time.

Any hotspots, carousels, NetMatrix positions, still images or HTML pages included in the view will work as usual.

Example of an 8×8 view sent to a *Secondary Display*. In this example, the main *NetGuard EVS* window is available on the left display.

To send a view to a *Secondary Display*, do the following:

1. In the *Live* or *Browse* tab's *Views* section, right-click the required view. This will bring up a menu.



2. In the menu, select *Send View To >Secondary Display*. If more than one secondary display is available, they will be numbered.

- ## Sending a View to a Floating Window

Sending a view to a *Floating Window* will show the view in a small separate window on your main display.

The floating window will only show the selected view, none of the *Live* or *Browse* tab's other features.

A floating window can only show one view at a time, but you can use any number of floating windows.

You are able to change the size of a floating window to suit your needs.

Any hotspots, carousels, NetMatrix positions, still images or HTML pages included in the view will work as usual in a floating window.

To send a view to a *Floating Window*, do the following:

1. In the *Live* or *Browse* tab's *Views* section, right-click the required view. This will bring up a menu.

2. In the menu, select *Send View To > Floating Window*.

- ### Closing Separate Windows

  To close a separate view window, regardless whether it is shown on the *Primary Display*, as a floating window, or on a secondary display, simply click the *Close* button in the right corner of the window's blue top bar.

  In order to allow the maximum possible viewing area, the blue top bar of a view sent to *Primary Display* or a *Secondary Display* is hidden. To show the top bar, and get access to the *Close* button, simply move your mouse pointer to the very top of the view.

- ### Multiple Window Setup is Stored for Next Login

  If you have created a multiple window setup for your views, the setup will be saved when you log out of the *NetGuard EVS*. The next time you log in, you will be asked if you want to use your previous views again, including your multiple window setup.

  Note, however, that this only applies if you log in to the *NetGuard EVS* on the computer on which you created your multiple window setup. Unfortunately, you cannot log in to a *NetGuard EVS* on another computer and expect to use your multiple window setup on the other computer as well. The simple reason for this is that not all computers have extra displays attached.

  If you want to use multiple windows with the *NetGuard EVS* on more than one computer, you must therefore configure your multiple window setup on each computer.

- ### Frequently Asked Questions about Multiple Windows

  How many secondary displays can I use? In the *NetGuard EVS* there is no limitation as such. However, the number of secondary displays you are able to use is likely to depend on your hardware (display adapters, etc.) and your Windows version.

  I want to close a view sent to *Primary Display* or a *Secondary Display*; where is the *Close* button? In order to allow the maximum possible viewing area, the blue top bar of a view sent to *Primary Display* or a *Secondary Display* is hidden. To show the top bar, and get access to the *Close* button, simply move your mouse pointer to the very top of the view.

  I watch the same carousel in two different windows; why is it out of sync? A carousel changes cameras at a specific interval, configured on the *Setup* tab. Example: With an interval of 10 seconds, the carousel will show Camera 1 for 10 seconds, then Camera 2 for 10 seconds, etc. The timing begins when you start watching a view containing the carousel. When you later begin watching the same carousel in another view, perhaps even in another window or another display, the timing for that instance of the carousel begins. This is why the carousel appears to be out of sync: in reality, you are watching two separate instances of the carousel.

When working on the *NetGuard EVS client*'s *Live* and *Browse* tabs, a number of simple keyboard shortcuts are available.

Tip: In addition to the standard keyboard shortcuts, you are able to assign your own custom shortcut key combinations to particular actions in the *NetGuard EVS*. See Assigning Custom Keyboard Shortcuts.

The *NetGuard EVS client*'s standard keyboard shortcuts are:

Note: When using below listed shortcuts, do not actually press the + key. When listing keyboard shortcuts, the + is used to indicate "and then press." Example: For the keyboard shortcut */+ENTER*, you should thus only press the / key, then the *ENTER* key.	
ENTER	Toggles maximized/regular display of the selected view position.
/ +<camera shortcut number>+ENTER	Lets you change the camera displayed in the selected view position to the camera with the matching shortcut number. Example: If the required camera has the shortcut number *6*, you would press */+6+ENTER*. Note that camera shortcut numbers may not necessarily be used on your surveillance system. Camera shortcut numbers are defined on the surveillance system server; ask your surveillance system administrator if in doubt.
/ +ENTER	Changes the camera displayed in the selected view position to the position's default camera.
/ + / +ENTER	Changes the cameras displayed in all view positions to the positions' default cameras.
***+<view shortcut number>+ENTER**	Changes the selected view to the view with the matching shortcut number. Example: if the required view has the shortcut number *8*, you would press **+8+ENTER*. Note that view shortcut numbers may not necessarily be used. If view shortcut numbers are used, you will be able to see them in the *Views* section, where they will appear in brackets before the views' names: View shortcut numbers are defined on the *NetGuard EVS client*'s *Setup* tab; ask your surveillance system administrator if in doubt.
6 (numeric keypad only)	Moves the view position selection one step to the right.
4 (numeric keypad only)	Moves the view position selection one step to the left.
8 (numeric keypad only)	Moves the view position selection one step up.
2 (numeric keypad only)	Moves the view position selection one step down.
Note: Above listed shortcuts can be used when working with the following types of view positions: regular camera positions, hotspots, carousels, HTML pages. They cannot be used for view positions with NetMatrix content or static images.	

Logging Out

To log out of the *NetGuard EVS*, simply click the *Log Out* button in the *NetGuard EVS client*'s top bar.

NetGuard

The *NetGuard* provides remote users with feature-rich access to the surveillance system. It lets users access multiple servers at a time, allowing remote user access across systems.

The *NetGuard* may either be installed locally on the remote user's computer, or it may be accessed through the internet and run from the NetDVR server.

Tip: See system requirements for the *NetGuard* under System Requirements.

- ### What are Remote Users Able to do with the NetGuard?

  With the *NetGuard*, remote users are able to:

  - View live images from cameras on the surveillance system.
  - Browse recordings from cameras on the surveillance system.
  - Create and switch between an unlimited number of views, each able to display images from up to 16 cameras from multiple servers at a time. Views can placed in *private* groups (only accessible by the user who created them) or *shared* groups (accessible by all *NetGuard* users connected to the NetDVR server).
  - Control PTZ (Pan/Tilt/Zoom) and IPIX (360° view) cameras.
  - Activate external outputs.
  - Get quick overviews of sequences with detected motion.
  - Print images.
  - Generate and export evidence in AVI (movie clip) and JPEG (still image) formats.
  - View HTML pages and static images, which may be used for intuitively switching between different views in the *NetGuard*.

- ### How does the NetGuard get Images from the Surveillance System?

  Images viewed by *NetGuard* users are provided by the *Image Server*. The *Image Server* runs as a service on the NetDVR server; it does not require separate hardware. The NetDVR system administrator uses the *Image Server Administrator* to manage *NetGuard clients*' access to the surveillance system.

- ### How can User Rights Affect Use of the NetGuard?

  The rights of individual remote users are specified centrally by the surveillance system administrator. The rights of an individual user will determine the user's ability to use the *NetGuard client*'s features.

  Basically, the surveillance system administrator is able to restrict a user's rights to the following:

  - Access to the *NetGuard*
  - Access to each of the *NetGuard client*'s tabs: *Live*, *Browse* and *Setup*
  - Ability to use features on the *NetGuard client*'s tabs
  - Ability to create views (views determine the way in which images from one or more cameras are displayed)
  - Ability to view images from specific cameras

  The ability to use various features of the *NetGuard* may therefore vary considerably from user to user. Ask your surveillance system administrator if in doubt about your user rights.

- ### How does the NetGuard Differ from the NetGuard EVS?

For a description of how the *NetGuard* differs from the*NetGuard EVS*, see Remote Access Overview.

Note: Downloading and installation of the *NetGuard* may not be necessary: The *NetGuard* may indeed be downloaded and installed locally on the remote user's computer, but it may also be run directly from the NetDVR server. If you choose to run the *NetGuard* directly from the NetDVR server, you simply access it through the internet (see *Accessing the NetGuard*). When this is the case, no downloading or installation is required. The *NetGuard* may also be installed from a software CD.

- ### Downloading and Installing the NetGuard

If you wish to download and install the *NetGuard*, do the following:

1. Open an Internet Explorer browser (version 6.0 or later), and connect to the URL or IP address specified by your system administrator in order to connect to the NetDVR server.

   When you connect to the NetDVR server, you will see a welcome page.

2. In the *NetGuard* section of the welcome page, click the *Download and install NetGuard locally* link.

3. Depending on your security settings, you may receive a security warning (*Do you want to run or save this file?*).

   When this is the case, click the *Run* button.

4. Depending on your security settings, you may receive a further security warning (*Do you want to run this software?*).

   When this is the case, click the *Run* button.

5. The *NetGuard Setup Wizard* begins.

   In the wizard, click *Next* and follow the installation instructions.

Accessing and configuring the *NetGuard* is very straightforward. Even first time users will typically be able to start and set up their *NetGuard* in a matter of minutes.

Access: The *NetGuard* may either be installed locally on the remote user's computer, or it may be run from the NetDVR server, and accessed by connecting to the server through an Internet Explorer browser. See the following descriptions:

- ### Accessing a NetGuard Run from Server

If you want to run the *NetGuard* straight from the NetDVR server, open an Internet Explorer browser (version 6.0 or later), and connect to the URL or IP address specified by your system administrator.

When you connect to the NetDVR server, you will see a welcome page.

In the *NetGuard* section of the welcome page, select between three ways of accessing the *NetGuard*:

- *Run NetGuard from server in full screen mode*:
  Lets you use the *NetGuard* directly from the NetDVR server, in full screen mode. In full screen mode, Internet Explorer's usual navigation buttons are not shown, which means that more screen space is available for viewing the *NetGuard* window. If selecting this option, you may be required to download the file *full.hta*. Downloading this file ensures that the *NetGuard* will work properly in full screen mode.
- *Run NetGuard from server in browser mode*:
  Lets you use the *NetGuard* directly from the NetDVR server, in browser mode. In browser mode, you view the *NetGuard* just like a regular web page in Internet Explorer.

- *Download and install NetGuard locally*:
  Lets you download and install the *NetGuard* on your computer. If you prefer this option, see Downloading and Installing the *NetGuard*.

Tip: By selecting *Remember my settings*, you can save your preferred access method (e.g. browser mode) and automatically use it the next time you connect. This requires that your browser's privacy settings allow cookies; to check your browser's privacy settings, select the *Tools* menu, then *Internet Options...*, then the *Privacy* tab, on which privacy settings are determined in the *Settings* section.

- ## Accessing a Locally Installed NetGuard

If the *NetGuard* is already installed locally, simply click the *NetGuard* shortcut to access it. Depending on your selections when installing the *NetGuard* locally, the shortcut is typically located in Windows' quick launch bar (next to the *Start* button); occasionally it may be placed on your desktop.

NetGuard shortcut icon

You may also access a locally installed *NetGuard* by selecting *Start* > *All Programs* > *NetDVRNetGuard*, then selecting either browser or full screen mode.

- ## Upon Accessing the NetGuard: Logging In

When accessing the *NetGuard*, either running it from the NetDVR server or by opening a locally installed version, you will be asked to log in:

To log in, do the following:

1. Specify your login information in the following fields:

   - *Username*: Type your user name as specified by your system administrator. The user name is case-sensitive, i.e. there is a difference between typing, for example, *amanda* and *Amanda*.
   - *Password*: Type your password as specified by your system administrator. The password is case-sensitive.
   - *Address*: Type the URL or IP address specified by your system administrator. This will typically be the same URL or IP address you used if connecting to the *NetGuard* through a browser, although it may occasionally be a different one.
   - *Port*: Internet connections may use different ports for different purposes. Specify the port number, your system administrator has asked you to use when logging in to the *NetGuard*. In most circumstances, port 80 is used.

   Tip: The vast majority of *NetGuard* users will always log in to the same address and port number. However, if you occasionally log in to different addresses and ports, or log in with different user names, the *Previous Logins* list lets you select your previously specified logins, in which case all you have to do is specify your password.

2. Click the *Login* link.

   After a short wait, the*NetGuard* window will open.

   The *NetGuard* window has three tabs: *Live*, *Browse* and *Setup*.

   The *Live* tab is used for viewing live images from cameras, the *Browse* tab is used for browsing recorded images from cameras, and the *Setup* tab is used for configuring the *NetGuard*.

   Note: Depending on your user rights, you may not be able to access all three tabs.

If You Log in for the First Time

If you have logged in for the first time, you need to determine whether any *views* exist. Views determine how images from cameras are displayed in the *NetGuard*, and are thus required in order to be able to use the *NetGuard*.

One or more views may already have been created for you, or you may need to create views yourself. Read more about views, including how to determine if any views have already been created for you, in Creating Views.

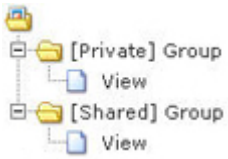
Logging in on Different Computers

Your user settings are stored on the NetDVR server. This means that your login can be used on any computer that has a *NetGuard*installed.

The way in which images from one or more cameras are displayed in the *NetGuard* is called a *view*. A view may contain images from up to 16 cameras. A *NetGuard* can handle an unlimited number of views, allowing you to switch between various collections of camera images.

In order to help you maintain an easy overview when you navigate between various views in your *NetGuard*, all views are placed in folders called *groups*. A group can contain any number of views.

Groups, in turn, can be *private* or *shared*. Views placed in private groups can only be accessed by the user who created them, whereas views placed in shared groups can be accessed by all *NetGuard* users connected to the NetDVR server.



Simplified example of *views* in private and shared *groups*

Before you create any views, it is important that you know the difference between views placed in *shared* and *private* groups—not least because a number of views may already have been created and placed in shared groups for *NetGuard* users in your organization.

When that is the case, you can start using your *NetGuard* straight away; creating further views in your *NetGuard* will not be necessary unless you want to supplement the views in the shared groups with views of your own, placed in private groups.

If you want to create views yourself, for example if no views in shared groups are available in your organization, the *NetGuard client*'s *Setup* tab lets you create groups and views, and specify which cameras should be included in each view.

- ### Are Any Views in Shared Groups Available?

  Especially if you are a first-time user of the *NetGuard*, you will want to know whether any views have already been created and placed in *shared* groups for your organization's *NetGuard* users.

  Typically, your surveillance system administrator will have told you if shared groups are used in your organization.

  Alternatively, to quickly determine whether any views have already been created and placed in shared groups, do the following:

  Note: This method requires that your user rights permit you to access the *NetGuard client*'s *Live* tab and/or *Browse* tab. Most users will have access to at least one of these tabs.

  1. Go to the *NetGuard client*'s *Live* or *Browse* tab.
  2. On the *Live* or *Browse* tab, look at the *Views* section:

- If the *Views* section contains any expandable folders labeled *[Shared] ...*, shared groups are available, and you may—your user rights permitting—begin using the views in the shared groups for viewing live and recorded images. See Viewing Live Images and Viewing Recorded Images. Only if you want to add more views, e.g. customize your *NetGuard* with views in private groups, do you need to create further views on the *Setup* tab.

- If the *Views* section contains no expandable folders at all, no views are available, and you must create at least one view on the *Setup* tab before you can begin using the *NetGuard*.

- If the *Views* section contains one or more expandable folders labeled *[Private] ...*, you have already created one or more views in private groups.

- ### Which Types of Groups are You Able to Create Views in?

  Depending on your user rights, you may be able to create and edit views in the following types of groups:

  - Private and shared
  - Private, but not shared
  - Shared, but not private
  - None at all (in which case you simply rely on views created by others and placed in shared groups)

  Typically only a few people in an organization are able to create and edit views in shared groups. For example, the surveillance system administrator may create and maintain a number of views and place them in shared groups: When *NetGuard* users log in, the views placed in the shared groups will automatically be available to them, and the users will basically not need to create further views unless they want their own views in *private* groups.

  To quickly determine which types of groups your user rights permit you to create and edit views in, do the following:

  1. Select the *NetGuard client*'s *Setup* tab.

     Note: Particular user rights may be required in order to access the *Setup* tab. If you are not able to access the *Setup* tab, you are not able to create views.

  2. On the *Setup* tab, look at the *Views* section:

     The Group folders to which you do ***not*** have access will be indicated by padlock icons.

  Consult your system administrator if in doubt about your user rights.

- ### Creating Views in Private Groups

  To create your first view in a private group, you first create a group, then create the required view within the group.

  If you have created views in private groups before, you may create new views in existing private groups, or you may create a new private group for the view.

  Note: Views are created on the *NetGuard client*'s *Setup* tab. Particular user rights may be required in order to access the *Setup* tab.

Creating a Private Group

To create a private group, do the following on the *Setup* tab:

1. In the *Setup* tab's *Views* section, select the *[Private]* folder, or—if you have created private groups before—any folder labeled *[Private]*.

2. In the *Setup* tab's *Group Control* section, type a name for the group in the *Group Name* field, then click the *New* button.

Your new group will now appear in the *Setup* tab's *Views* section, with the name you have specified, and labeled as *[Private]*:

You are now able to create a view within the group.

Creating a View in a Private Group

To create a view in a private group, make sure the group in which you want to create the view is selected in the *Setup* tab's*Views* section, and do the following:

3. In the *Setup* tab's *View Control* section, type a name for the view in the *View Name* field.

2. Click one of the *View Control* section's seven available *New View* layouts:

Your new view is automatically added to the selected group:

Tip: A group, whether private or shared, can contain an unlimited number of views. More than one private and shared group can exist.

Adding Cameras to the View

Having created a view within a group, you are able to specify which cameras should be included in the view.

To add cameras to a view, do the following:

3. In the *Setup* tab's *Views* section, select the required view.

When you select a view, the layout of the selected view is outlined in the main section of the *NetGuard* window.

2. In the *Setup* tab's *System Overview* section, click the plus sign ⊞ next to the required server to view a list of available cameras.

3. In the list, select a camera and drag the camera to the required position in the view.

When you have dragged a camera to a position in the view, the name of the camera will appear in the selected position. You will not see images from the camera yet, as the *Setup* tab is only for configuration, not for viewing images.

Repeat for each camera required in the view.

Tip: If you want to use all of the cameras under a server, you may simply drag the required server to the view; this will automatically place all of the server's cameras in the view, beginning at the selected position. Remember to have sufficient positions available in the view.

Tip: You can always change the cameras in your view: Either drag the *System Overview* section's *Clear* link to a position in the view to clear the position, or simply overwrite a position by dragging a different camera to the position.

4. You are now able to use your view: You may—your user rights permitting—select the view on the *Live* tab (see Viewing Live Images) and on the *Browse* tab (see Viewing Recorded Images).

Tip: In addition to cameras, you are able to add static images and HTML pages to views. See Further Configuration.

- ## Creating Views in Shared Groups

To create view in a shared group, you first create a group, then create the required view within the group.

If you have created views in shared groups before, you may create new views in existing shared groups, or you may create a new shared group for the view.

Note: Views are created on the *NetGuard* client's *Setup* tab. Particular user rights may be required in order to access the *Setup* tab and in order to be able to create shared views. When creating a shared view, bear in mind that depending on their user rights not all users may have access to all cameras on the surveillance system.

Creating a Shared Group

To create a shared group, do the following on the *Setup* tab:

1. In the *Setup* tab's *Views* section, select the *[Shared]* folder, or—if you have created shared groups before—any folder labeled *[Shared]*.

2. In the *Setup* tab's *Group Control* section, type a name for the group in the *Group Name* field, then click the *New* button.

   Tip: Bear in mind that since the group is shared, it will also appear in other users' *NetGuard clients*; therefore use a name which other users will immediately be able to understand.

   Your new group will now appear in the *Setup* tab's *Views* section, with the name you have specified, and labeled as *[Shared]*:

   You are now able to create a view within the group.

Creating a View in a Shared Group

To create a view in a shared group, make sure the group in which you want to create the view is selected in the *Setup* tab's *Views* section, and do the following:

3. In the *Setup* tab's *View Control* section, type a name for the view in the *View Name* field.

   Tip: Bear in mind that since the view will appear in a shared group, it will also appear in other users' *NetGuard clients*; therefore use a name which other users will immediately be able to understand.

2. Click one of the *View Control* section's seven available *New View* layouts:

   Your new view is automatically added to the selected group:

Tip: A group, whether private or shared, can contain an unlimited number of views. More than one private and shared group can exist.

Adding Cameras to the View

Having created a view within a group, you are able to specify which cameras should be included in the view.

Note: Bear in mind that depending on their user rights not all users may have access to all cameras on the surveillance system. Thus, even though you may be able to view images from all cameras in a shared view, other users may not necessarily be able to view images from all the cameras. Consult your system administrator if in doubt.

To add cameras to a view, do the following:

3. In the *Setup* tab's *Views* section, select the required view.

When you select a view, the layout of the selected view is outlined in the main section of the *NetGuard* window.

2. In the *Setup* tab's *System Overview* section, click the plus sign ⊞ next to the required server to view a list of available cameras.

3. In the list, select a camera and drag the camera to the required position in the view.

When you have dragged a camera to a position in the view, the name of the camera will appear in the selected position. You will not see images from the camera yet, as the *Setup* tab is only for configuration, not for viewing images.

Repeat for each camera required in the view.

Tip: If you want to use all of the cameras under a server, you may simply drag the required server to the view; this will automatically place all of the server's cameras in the view, beginning at the selected position. Remember to have sufficient positions available in the view.

Tip: You can always change the cameras in the view: Either drag the *System Overview* section's *Clear* link to a position in the view to clear the position, or simply overwrite a position by dragging a different camera to the position.

4. *NetGuard* users on your surveillance system will now able to access the view in the shared group as from their next login.

Tip: In addition to cameras, you are able to add static images and HTML pages to views. See Further Configuration.

Using Your Views on Different Computers

Your user settings, including your private views, are stored on the NetDVR server. This means that you are able to use your private views on any computer that has a *NetGuard* installed, provided you log in to the *NetGuard* with your own user name and password.

Note: From time to time your system administrator may make changes to camera or user properties on the NetDVR server. When this is the case, such changes will take effect in the *NetGuard* the first time you log in after the changes were made. Such changes may occasionally require you to re-create your views. Ask your system administrator if in doubt.

In addition to creation of groups and views, the *NetGuard* client's *Setup* tab lets you edit existing groups and views. The *Setup* tab furthermore lets you adjust camera settings, and set up joystick control for PTZ (Pan/Tilt/Zoom) cameras.

Note: Particular user rights may be required in order to access the *Setup* tab. Your ability to edit groups and views also depends on your user rights. Basically, if you are able to create groups and views, you are also able to edit them.

- ### Which Types of Groups are You Able to Edit Views in?

  Depending on your user rights, you may be able to create and edit views in the following types of groups:

  - Private and shared
  - Private, but not shared
  - Shared, but not private
  - None at all

  To quickly determine which types of groups your user rights permit you to create and edit views in, do the following:

  1. Select the *NetGuard client*'s *Setup* tab.

     Note: Particular user rights may be required in order to access the *Setup* tab. If you are not able to access the *Setup* tab, you are unable to create views.

  2. On the *Setup* tab, look at the *Views* section:

     The Group folders to which you do ***not*** have access will be indicated by padlock icons.

  Consult your system administrator if in doubt about your user rights.

- ### Using Static Images in Views

  You are not limited to using camera images in a view; you are able to use static images (such as GIF or JPEG) as well.

  To use a static image in a view, do the following on the *Setup* tab:

  1. Drag the *System Overview* section's *Static Image* link to the required position in the view.
  2. Release the mouse button over the required position.

     When you release the mouse button, the *Choose File* window opens, letting you select the required static image file.

- ### Using HTML Pages in Views

  In addition to viewing camera images and static images in a view, you are able to import HTML pages and display them in the view. This way, you are able to include company web pages, intranet pages, navigation pages, link collections, etc. together with the camera images in the view.

  Tip: When your imported HTML pages contain links, it is recommended that links have the `target='blank'` attribute (example: `<a href="otherwebpage.htm" target="blank">Link</a>`). This will make the links open in separate windows, which will help you avoid losing view of the *NetGuard* window itself due to a link opening a web page in the same browser window as the *NetGuard*. This, however, does not apply if using an imported HTML page for navigation between the *NetGuard client*'s *different* views; read more about this in *Using an HTML Page for NetGuard Navigation*.

  To include an HTML page in a view, do the following on the *Setup* tab:

  1. Drag the *System Overview* section's *HTML Page* link to the required position in the view.

     When you release the mouse button over the required position, the *Import HTML Page* window opens.

  2. In the *Import HTML Page* window's *Url* field, type the URL of the required HTML page (example: http://www.mywebsite.com/mywebpage.htm). Always include the *http://* prefix.

- or -

If the HTML page is stored locally on your computer, specify its location on your computer (example: C:\myfiles\mywebpage.htm), or click the *Browse...* link to browse for the required HTML page.

3. In the *Title* field, you are able to specify a title for the HTML page. The title will appear in blue title bar above the HTML page itself when it is displayed in the view.
4. Select scaling for the HTML page, either *No scaling* (default) or the required scaling (640×480, 800×600, 1024×768 or 1280×1024).
5. Click the *OK* link.

- ### Renaming Groups

To rename a group, do the following on the *Setup* tab:

1. Select the required group in the *Views* section.
2. In the *Group Control* section, overwrite the existing name in the *Group Name* field.
3. Click the *Rename* button.

- ### Deleting Groups

Note: Deleting a group will delete all views within the group as well.

To delete a group, do the following on the *Setup* tab:

1. Select the required group in the *Views* section.
2. In the *Group Control* section, click the *Delete* button.

   You will be asked to confirm that you want to delete the group and all of its views.

- ### Renaming Views

To rename a view, do the following on the *Setup* tab:

1. Select the required view in the *Views* section.
2. In the *View Control* section, overwrite the existing name in the *View Name* field.
3. Click the *Rename* button.

- ### Deleting Views

To delete a view, do the following on the *Setup* tab:

1. Select the required view in the *Views* section.
2. In the *View Control* section, click the *Delete* button.

   You will be asked to confirm that you want to delete the view.

- ### Adjusting Camera Settings

In the *Setup* tab's *Camera Control* section, you are able to adjust camera settings.

To adjust camera settings, select the position of the required camera in the view. The position you select will be indicated by a bold border.

Image Quality

The *Image Quality* setting determines the quality of the images when viewed, but also affects bandwidth usage.

If the *NetGuard* is used over the internet, over a slow network connection, or if for other reasons you need to limit the bandwidth used by the *NetGuard*, image quality can be reduced on the server side by selecting e.g. *Low* or *Medium*

Tip: You can quickly reduce the bandwidth usage for all cameras in the view by reducing the image quality for a single camera, then clicking the *Apply To All* button.

Frame Rate

Lets you select a frame rate for the selected camera. Default is *Unlimited*.

IPIX Split Mode

Available only if the selected camera is an IPIX camera. IPIX is a technology that allows creation and viewing of 360-degree panoramic images. The *NetGuard* supports up to four different viewpoints from a single IPIX camera.

The IPIX Split Mode list lets you select the required spilt mode:

- *One by One* lets you view a single viewpoint.
- *Two by Two* lets you view four different viewpoints at a time.

When viewed on the *Live* and *Browse* tabs, the IPIX camera will appear as specified, with either one or four viewpoints from the same image:

Tip: When viewing different viewpoints from an IPIX camera on the *Live* or *Browse* tabs, you are able to navigate each viewpoint independently by clicking inside each viewpoint, or by using the buttons in the *PTZ Control* section.

Apply to All

The *Apply To All* button lets you quickly apply the camera settings for the selected camera to all cameras in the view.

- ## Configuring Joystick Control

The *Setup* tab's *Joystick Control* section lets you configure joystick control of PTZ (Pan/Tilt/Zoom) cameras. Joystick configuration control requires that a joystick is attached to the computer running the *NetGuard*.

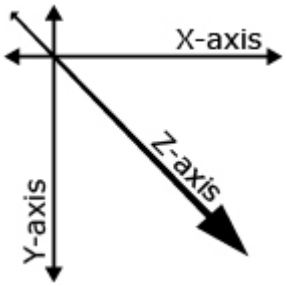
Note: Even though joystick control is supported for a large number of PTZ cameras, not all PTZ cameras may be joystick-controlled. Refer to the release note for information about joystick support for cameras.

Click the *Joystick Control* section's *Setup...* button to access the *Joystick Setup* window.

The *Joystick Setup* window

The *Joystick Setup* window's *Joystick Axes* section lets you configure the axes used for the joystick.

With a joystick, you are typically able to navigate camera images three-dimensionally, along three axes: an X-axis, a Y-axis, and a Z-axis, where the Z-axis refers to the depth (zoom) level:



Example: X-, Y-, and Z-axes

Button, Check Box	Description
Invert y-axis	Lets you invert the Y-axis. This way, you are able to select whether the camera should move up or down when you move the joystick towards you and away from you respectively.
z-axis uses a relative positioning scheme	Lets you specify whether the Z-axis should use a relative or an absolute positioning scheme. This will affect the way you zoom in and out with camera.
Default values	Lets you use the joystick's default axes settings.

The *Joystick Buttons* section lets you specify which joystick buttons should be used for particular actions.

To assign an action to a particular joystick button, select the required action in the list, then click the required joystick button. When a button is assigned to an action, the name of the button will be listed together with the name of the action.

To stop using a particular joystick button for a particular action, select the button/action in the list, then click the *Unselect* button.

To free all joystick buttons from their associated actions, click the *Unselect All* button.

You view live images on the *NetGuard*'s *Live* tab.

When you select the *NetGuard client*'s *Live* tab, the *NetGuard* will connect to the NetDVR server, and display live images from the cameras in the selected view.

Note: Particular user rights may be required in order to access the *Live* tab. In order to view live images in the *NetGuard*, the surveillance system's recording server must be running; consult your surveillance system administrator if in doubt. Depending on your user rights, access to viewing live images from some cameras may be restricted.

- ## Selecting a View

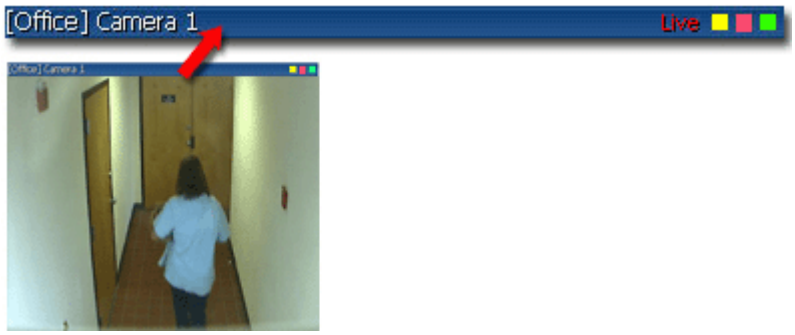
  You are able to select a view for display on the *Live* tab in two ways:

  - By selecting the required view in the *Live* tab's *Views* section.
  - By selecting the required view from the *Views* list located in the upper part of the window.

- ## Image Bars

  Each camera in the view is identified by an image bar, located in the top of each camera image.

  The image bar is blue. When you select a particular camera in the view, the image bar of the selected camera image becomes a lighter blue.

  Camera image; enlarged detail shows image bar

  The image bar displays the name of the camera as well as the name of the device to which the camera is connected. The device name is displayed first, in square brackets, followed by the camera name.

  Each image bar will display the word *Live* when live images are displayed, and the word *Stopped* if the camera is stopped and live viewing is not possible.

  Each image bar features three colored indicators:

  - *Event indicator (the leftmost of the three indicators, solid yellow)*: Lights up when specific events, defined by the surveillance system administrator, occur. Click anywhere inside the image to reset the event indicator. This indicator may appear black if event indication has not been specified for the camera in question, of if no specified events have occurred. Consult your surveillance system administrator if in doubt.
  - *Motion indicator (the indicator in the middle, solid red)*: Lights up when motion is detected in the image. Click anywhere inside the image to reset the motion indicator.
  - *Online indicator (the rightmost of the three indicators, blinking green)*: Changes state every time an image is received from the camera.

- ## Enlarging Images from Particular Cameras in a View

  To enlarge images from a particular camera in a view, double-click the blue image bar above the image.

Double-clicking blue bar above image enlarges view

To return to normal view, simply double-click the blue image bar again.

Tip: If you have selected reduced image quality for the camera (on the *Setup* tab), images from the camera will be displayed in full quality when viewed enlarged.

- ## Output Control

If the selected camera has external outputs defined, for example for switching on lights or sounding a siren, such outputs can be triggered from the *NetGuard*.

Note: Depending on your user rights, access to triggering outputs for some cameras may be restricted.

To trigger an output, first select the required camera in the view, then select the required output in the *Output Control* section, and click the *Fire* link.

- ## PTZ Control

PTZ (Pan/Tilt/Zoom) and IPIX (technology allowing creation and viewing of 360-degree panoramic images) cameras can be controlled from the *NetGuard*.

Note: Depending on your user rights, access to PTZ controls from some cameras may be restricted.

Point-and-Click Control

Many PTZ cameras may be controlled simply by pointing and clicking inside the images from the camera. If you see a set of crosshairs when placing your mouse pointer over the images from a PTZ camera, point-and-click control is supported for the camera.

Crosshairs indicate point-and-click control.
For some cameras, crosshairs may look different.

For some cameras, crosshairs surrounded by a square may be displayed. When this is the case, you are able to zoom in on an area by dragging a square around the required area in the image. For such cameras, zoom level is controlled by holding down the SHIFT key on your keyboard while moving the mouse up or down; this will display a zoom level slider inside the image.

PTZ Navigation Buttons

Alternatively, use the navigation buttons in the *PTZ Control* section to move the selected PTZ or IPIX camera. The round middle button lets you quickly move the camera to its home (i.e. default) position. The *plus* and *minus* buttons lets you zoom in and out respectively.

PTZ Preset Positions

If preset positions have been defined for the selected PTZ camera, you are able to select such positions from the *Presets* list. Selecting a preset position from the list will make the PTZ camera move to the specified position.

Preset positions are defined by the system administrator; the *Presets* list will be empty if no preset positions have been defined for the selected PTZ camera.

IPIX PTZ Positions

You are able to move to a specific position in an IPIX view, and then save that position by clicking the *Save* button. When you later want to return to the saved position, click the *Load* button.

Tip: You may be able to use a joystick for controlling your PTZ and IPIX cameras. Joystick control is configured on the *NetGuard client*'s *Setup* tab. See Further Configuration.

Note: Even though joystick and point-and-click control is supported for a large number of PTZ cameras, not all PTZ cameras may be controlled this way. Refer to the release note for information about joystick and point-and-click support for PTZ cameras.

You view recorded images on the *NetGuard*'s *Browse* tab.

When you select the *NetGuard*'s Browse tab, the *NetGuard* will connect to the NetDVR server, and display recorded images from the cameras in the selected view. This way, you are able to browse recorded images.

Note: Particular user rights may be required in order to access the *Browse* tab. Depending on your user rights, access to browsing images from some cameras may be restricted. Date and time formats used when browsing recorded images may vary depending on your computer's regional settings. Illustrations in this help topic, and date and time formats used in these illustrations, are thus for guidance only.

The *Browse* tab provides you with a number of advanced features for browsing recorded images. In addition to image browsing features, the *Browse* tab also lets you print images, and export AVIs (movie clips) and JPEGs (still images).

- ## Selecting a View

  You are able to select a view for display on the *Browse* tab in two ways:

  - By selecting the required view in the *Browse* tab's *Views* section.
  - By selecting the required view from the *Views* list located in the upper part of the window.

- ## Enlarging Images from Particular Cameras in a View

  To enlarge images from a particular camera in a view, double-click the blue title bar above the image.

  Double-clicking blue bar above image enlarges view

  To return to normal view, simply double-click the blue title bar again.

  Tip: If you have selected reduced image quality for the camera (on the *Setup* tab), images from the camera will be displayed in full quality when viewed enlarged.

- ## Time Navigation

The *Browse* tab's *Time Navigation* section provides you with controls for browsing and playing back recorded images from the camera selected in the view.

Master Time Area

The *Time Navigation* section's *Master Time* area shows the master time and date of the recordings viewed. The master time is the time to which all the cameras viewed are tied. This means that when you browse recordings, all the images you see in the view will, in principle, be from exactly the same point in time.

Some cameras, however, may only record if motion is detected. Also, there may be no recorded images from one or more cameras in the view matching the specified point in time. When this is the case, the last image in the camera's database prior to the specified point in time will be displayed in the view.

The *Master Time* area also displays the current playback speed (example: 1.00x, indicating real-time).

Browse Buttons

The *Time Navigation* section's browse buttons lets you manually navigate through recordings from the camera selected in the view.

	Previous image: Moves to the image just before the one currently viewed
	Next image: Moves to the image just after the one currently viewed
	Previous sequence: Moves to the first image in the previous sequence
	Next sequence: Moves to the first image in the following sequence
	First image: Moves to the first image in the database for the selected camera
	Last image: Moves to the last image in the database for the selected camera

Time Sliders

The *Time Navigation* section's time sliders let you browse recordings simply by dragging the sliders' handles.

Drag to the left to move backwards in time; drag to the right to move forward in time.

Use the upper times slider for fine browsing within a limited period of time; use the lower slider for more coarse browsing within longer time spans.

Playback Slider and Buttons

The *Time Navigation* section's playback slider lets you specify the required playback speed. In the slider's middle position, playback speed is real-time (1.00x). Drag the slider to the left for a slower playback speed; drag to the right for a faster playback speed.

An indication of the exact playback speed is displayed in the upper right corner of the *Time Navigation* section's *Master Time* area.

Use the playback buttons to play back recordings:

	Play reverse: Plays back recordings backwards in time

	Play forward: Plays back recordings forward in time
	Stop: Stops playback

Tip: Dragging the playback slider to its leftmost position pauses playback.

Go To Time
The *Time Navigation* section's *Go To Time* fields let you quickly jump to a specific point in time.

Specify required date in the first field and required time in the second field, then click the *Go* link.

- ## Sequences

The *Browse* tab's *Sequences* section provides you with an overview of recorded sequences for the camera selected in the view.

To use the *Sequences* section, select the required camera in the view, then click the *Sequences* section's *Get Sequences* button.

Clicking the *Get Sequences* button will retrieve a list of up to 40 sequences: 20 sequences prior to the point in time displayed in the view, and 20 sequences following the point in time displayed in the view.

Each sequence will be listed with date and time as well as the length of the sequence.

Clicking a sequence in the list will move all images in the view to the time of the sequence.

If the *Preview* check box is selected, you are able to quickly view each sequence by placing the mouse pointer over the required sequence in the list.

Clicking the *expand* icon ⊞ next to a sequence in the list will show you the exact date and time of the first and last image in the sequence as well as the exact date and time of the motion detection, event, etc. triggering the recording.

Sequences may often begin some seconds before a motion detection, event, etc. and end some seconds after. This so-called buffer allows you to be able to see what happens immediately before and after an incident; the buffer length is determined by the system administrator.

Expanded sequence indication. Date and time format may be different on your computer.

- ## PTZ Control

The Browse tab's PTZ Control section lets you navigate recorded images from IPIX cameras (IPIX is a technology allowing creation and viewing of 360-degree panoramic images).

Note: The *Browse tab's PTZ Control section* cannot be used for controlling PTZ (Pan/Tilt/Zoom) cameras, as the *Browse* tab is used for viewing already recorded images.

Point-and-Click Control
Many IPIX cameras may be controlled simply by pointing and clicking inside the images from the camera.

If you see a set of crosshairs when placing your mouse pointer over the images from an IPIX camera, point-and-click control is supported for the camera. Refer to the release note for information about point-and-click support.

PTZ Navigation Buttons

As an alternative to point-and-click IPIX control, use the navigation buttons in the *PTZ Control* section to move around the view from the selected IPIX camera. The round middle button lets you quickly move the camera to its home (i.e. default) position. The *plus* and *minus* buttons lets you zoom in and out respectively.

PTZ Preset Positions

The *Presets* list does not apply for navigating recorded images from IPIX cameras.

IPIX PTZ Preset Positions

You are able to move to a specific position in the IPIX view, and then save that position by clicking the *Save* button. When you later want to return to the saved position, click the *Load* button.

- ## Printing Images

With the *Browse* tab's *Print* section, you are able to print recorded images.

To print an image, do the following:

1. Select the required camera from the *Print* section's *Source* list.

   Alternatively, you may select the camera in the view.

2. Select the required date and time by using the controls in the *Time Navigation* section.

3. Click the *Print* section's *Print* button.

   This will open a separate window with a preview of the image to be printed as well as information about camera name, image capture time, print time and user name of the user printing the image. You also have the option of including a user's note, for example a description of the recording.

4. Click the separate window's *Print* link to print the image and associated details.

- ## Exporting Images

With the *Browse* tab's *Export* section, you are able to export recorded images in the AVI (movie clip) and JPEG (still image) formats.

See Exporting Video Evidence for detailed information about exporting recorded images.
With the *NetGuard* you are able to quickly generate and export video evidence in the AVI (movie clip) and JPEG (still image) formats.

Note: Depending on your user rights, access to generating AVI and/or JPEG evidence from some cameras may be restricted.

Note: Date and time formats used when browsing recorded images may vary depending on your computer's regional settings. Illustrations in this help topic, and date and time formats used in these illustrations, are thus for guidance only.

Note: If exporting recordings from an IPIX camera, be aware that it is only possible to export the "fisheye" view itself; not a flattened IPIX view, a 2×2 split IPIX view, or zoomed IPIX views.

To export video evidence, do the following:

1. Select the *NetGuard client*'s *Browse* tab.

2. In the *Browse* tab's *Export* section, specify start date and time for the export by typing the date in the first *Start Time* field and the time in the second field.

Tip: Instead of manually specifying date and time, you may use the *Browse* tab's *Time Navigation* features to move to the required start point, then click the upper of the *Export* section's *Set* links, This will automatically set the date and time of the viewed image into the *Start Time* fields.

3. In the *End Time* fields, specify end date and time for the export.

   As was the case with the start date and time, end date and time must be in the correct format if specified manually. Alternatively, use the *Set* link as described above.

4. Select the required camera from the *Source* list.

5. Click the *Export* button.

   This will open a separate export dialog.
   The export dialog will list the specified start time, end time, and camera.

6. In the export dialog, select the required export format: *AVI* (movie clip) or *JPEG* (still images).

7. Select whether to add timestamps from the surveillance system to the exported images.

   If selected, timestamps will appear in the corner of the images:

Timestamps; arrow indicates actual position. Date and time format may be different on your computer.

8. ***This step applies for export in the AVI format only; if using the JPEG format, go to step 11***
   Select required frame rate for the export. With the *Full* option, all images between the start and end times will be included in the export; with the *Half* option, only every second image will be included, yet still play back in real-time.

9. ***This step applies for export in the AVI format only; if using the JPEG format, go to step 11***
   In the *AVI Codec* list, select required AVI codec. The list will contain the video codecs available on your PC.

   Tip: A video codec is a particular compression/decompression technology used when generating video files. Your choice of codec will affect the quality and size of the AVI file. The Indeo® video 5.10 codec, if available on your PC, generally provides a very good compromise between quality and file size.

10. ***This step applies for export in the AVI format only; if using the JPEG format, go to step 11***
    By default, the AVI file will get a file name based on the export start time, along the structure yyyymmddhhmmss.avi (year, month, day, hour, minute, second; example: 20050630160430 for a file with a start time of 16:04:30 on 30th June 2005). The name will automatically appear in the *AVI File Name* field.

    The default file name format is independent of regional settings on your computer.

    You are always able to change the default file name to a name of your choice, simply by overwriting the default file name. Remember that the file name *must* include the .avi file extension.

11. Specify export destination.

    If you select *Desktop*, your exported file will be saved in an automatically created *Exported Images* folder on the desktop of your PC.

    If you select *Path*, you are able to specify a path yourself. The exported file will be saved in an automatically created *Exported Images* folder under the path you specify (example: If you specify a path like C:\My Stuff\My Files, the exported file will be saved in C:\My Stuff\My Files\Exported Images). When specifying a path this way, the folders you specify do not have to be existing ones; if they do not already exist, they will be created automatically.

12. Click the *Export* link to begin the export.

    The status bar in the upper part of the export dialog will display the status of the export.

Tip: If you are exporting very long sequences, export may—depending on your selected export settings—take a while. You can continue to use the *NetGuard* for other purposes while the export process is underway.

If the *Close On Completion* check box is selected (default), the export dialog will automatically close when the export is finished.

Upon completion, you are able to view and distribute the exported file.

Example: AVI file viewed in the Winamp player; other common players include the Windows Media Player and the RealPlayer

You are able to use the following keyboard shortcuts in the *NetGuard*:

On All Tabs:

CTRL+1	Go to *Live* tab
CTRL+2	Go to *Browse* tab
CTRL+3	Go to *Setup* tab
CTRL+DOWN ARROW	Go to the next view in the *Views* list (located in the upper part of the window)
CTRL+UP ARROW	Go to the previous view in the *Views* list (located in the upper part of the window)

On Live Tab Only:

PLUS SIGN	PTZ camera, zoom in
MINUS SIGN	PTZ camera, zoom out
UP ARROW	PTZ camera, move up
DOWN ARROW	PTZ camera, move down
LEFT ARROW	PTZ camera, move left
RIGHT ARROW	PTZ camera, move right
HOME (numeric keypad only)	PTZ camera, move up and left
END (numeric keypad only)	PTZ camera, move down and left
PAGE UP (numeric keypad only)	PTZ camera, move up and right
PAGE DOWN (numeric keypad only)	PTZ camera, move down and right
5 (numeric keypad only)	PTZ camera, move to default position

On Browse Tab Only:

RIGHT ARROW	Move to next image
LEFT ARROW	Move to previous image
PAGE DOWN	Move to next sequence
PAGE UP	Move to previous sequence
HOME	Move to first image
END	Move to last image

In addition to displaying images from cameras, the *NetGuard* is able to display static images and HTML pages. Such HTML pages may be used for intuitively switching between different views in the *NetGuard*.

For example, you may insert a clickable floor plan of a building, and you would be able to simply click a part of the floor plan to instantly switch to a view displaying images from the required part of the building.

In the following, you will see examples of HTML pages for *NetGuard* navigation: a simple HTML page with buttons, and a more advanced HTML page with a clickable image map. For NetDVR system administrators wishing to create and distribute such HTML pages to *NetGuard* users, a check list outlining the tasks involved is also provided.

Note: The method described here requires a locally installed version of the *NetGuard*.

- ## Example of an HTML Page with Button Navigation

A very quick solution is to create an HTML page with buttons for navigation. You are able to create five categories of buttons on the HTML page:

- **Buttons for switching between the *NetGuard client*'s views**

  Required HTML syntax:

  ```
  <input type="button" value="Buttontext" onclick="top.changeView('Groupname',
  'Viewname');">
  ```

- **Buttons for switching between the *NetGuard client*'s three tabs: *Live*, *Browse* and *Setup***

  Bear in mind that, depending on their user rights, some users may not be able to access all three tabs.

  Required HTML syntax:

  Live tab: `<input type="button" value="Buttontext" onclick="top.selectPane('live');">`

  Browse tab: `<input type="button" value="Buttontext" onclick="top.selectPane('browse');"`

  Setup tab: `<input type="button" value="Buttontext" onclick="top.selectPane('setup');">`

- **Buttons for hiding / showing the *NetGuard client*'s standard navigation pane**

  Required HTML syntax:

  Hiding: `<input type="button" value="Buttontext" onclick="top.showPane(false);">`

  Showing: `<input type="button" value="Buttontext" onclick="top.showPane(true);">`

- **Buttons for hiding / showing the *NetGuard client*'s standard title bar**

  Required HTML syntax:

  Hiding: `<input type="button" value="Buttontext" onclick="top.showTopTitle(false);">`

  Showing: `<input type="button" value="Buttontext" onclick="top.showTopTitle(true);">`

- **Buttons for switching to a particular point in time in the *Browse* tab's time navigation**

  Required HTML syntax:

  ```
  <input type="button" value="Buttontext" onclick="top.setTime('Mmm dd yyyy
  hh:mm:ss');">
  ```

In the following example we have created two shared groups in the *NetGuard*. We have called them *[Shared] Group1* and *[Shared] Group2*. Each group contains two views, called *View1* and *View2*.

We have also created an HTML page with examples of all available button types, including the ability to switch between our four different views.

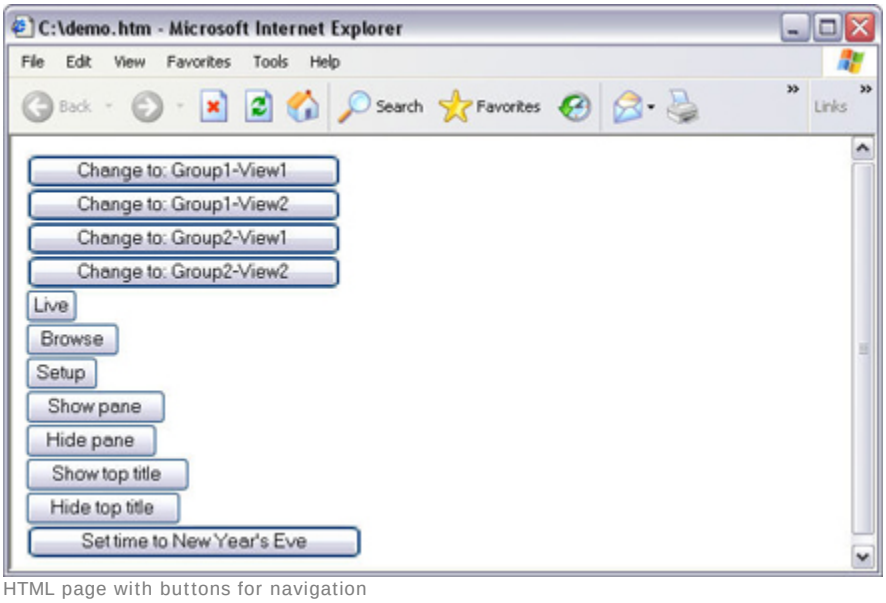
The HTML for the page looks like this:

```
<html>
<body>
<input type="button" value="Change to: Group1-View1" onclick="top.changeView('[Shared]
Group 1', 'View 1');"><br>
```

```
<input type="button" value="Change to: Group1-View2" onclick="top.changeView('[Shared]
Group 1', 'View 2');"><br>
<input type="button" value="Change to: Group2-View1" onclick="top.changeView('[Shared]
Group 2', 'View 1');"><br>
<input type="button" value="Change to: Group2-View2" onclick="top.changeView('[Shared]
Group 2', 'View 2');"><br>
<input type="button" value="Live" onclick="top.selectPane('live');"><br>
<input type="button" value="Browse" onclick="top.selectPane('browse');"><br>
<input type="button" value="Setup" onclick="top.selectPane('setup');"><br>
<input type="button" value="Show pane" onclick="top.showPane(true);"><br>
<input type="button" value="Hide pane" onclick="top.showPane(false);"><br>
<input type="button" value="Show top title" onclick="top.showTopTitle(true);"><br>
<input type="button" value="Hide top title" onclick="top.showTopTitle(false);"><br>
<input type="button" value="Set time to New Year's Eve" onclick="top.setTime('Dec 31 2005
23:59:50');"><br>
</body>
</html>
```

Tip: You may copy the HTML, and modify it for an HTML page of your own.

When viewed in a browser, our HTML page looks like this:



HTML page with buttons for navigation

We have saved the HTML page locally, in this case on the user's C: drive. When the HTML page is to be used for navigation, saving the HTML page locally is necessary because of security features in Internet Explorer.

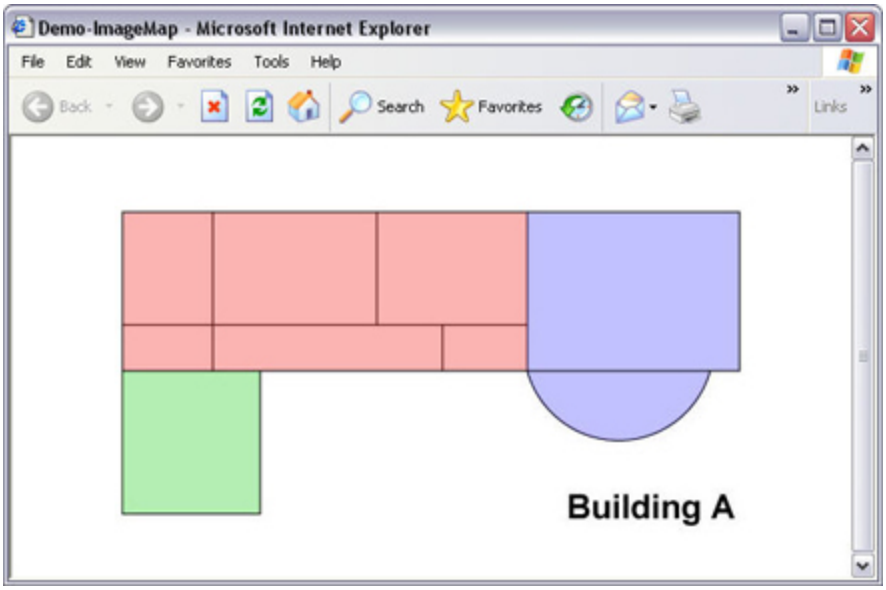
When saving the HTML page locally, save it at a location to which an unambiguous path can be defined, for example in a folder on the user's C: drive (example: C:\myfolder\file.htm). Saving the HTML page on the user's desktop or in the user's *My Documents* folder will not work properly due to the way Windows constructs the path to such locations.

- ## Example of an HTML Page with Image Map Navigation

You may also create an HTML page with more advanced content, for example an image map allowing users to switch between views.

In the following example we have kept the two groups and two views from the previous example.

Instead of using buttons, we have created an HTML page with an image of a floor plan, and created an image map based on the floor plan. Viewed in a browser, our HTML page looks like this:


Demo-ImageMap - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Links
Building A

HTML page with image map for navigating between views

How you structure and create an image map is of course highly individual. For this example, we divided the floor plan into colored zones, and defined an image map area for each zone. This way, users will be able to simply click a zone in order to go to the view displaying cameras from that zone.

For instance, the red zone on our image map mirrors the *Change to: Group2-View2* button from the previous example: When clicking the red zone, users will go to View2 in Group2.

- ## Importing the HTML Page

Importing an HTML page for navigation is no different from importing any other type of HTML page into a view in the *NetGuard*. The important thing to remember is that the HTML page should be stored locally on the user's PC.

To import an HTML page, go to the *NetGuard client*'s *Setup* tab. From the *Setup* tab's *System Overview* section, drag the *HTML Page* link to the required position in the required view.

This will open the *Import HTML Page* dialog, in which you specify the required HTML page. You are also able to specify a title for it; the title will appear in the title bar of the HTML page when displayed in the view.

Depending on the navigation features you have included on your HTML page, you may often want to import the HTML page into several views in order for the navigation to fully work.

- ### System Administrator's Check List

  NetDVR system administrators wishing to create and distribute navigation HTML pages to *NetGuard* users, do the following:

  1. **Create** the required HTML page. The navigation controls in the HTML page must match the views users see in their *NetGuard.* For example, in order for a button leading to View1 to work, a view called View1 must exist. If you intend to distribute a navigation HTML page to a group of users, the views in which the HTML page will be used should be placed in shared groups.

  2. **Save** the HTML page locally on each computer on which it will be used. When saving the HTML page locally, save it at a location to which an unambiguous path can be defined, for example in a folder on the user's C: drive (example: C:\myfolder\file.htm). Saving the HTML page on the user's desktop or in the user's *My Documents* folder will not work properly due to the way Windows constructs the path to such locations.

  3. **Verify** that the *NetGuard* in which the HTML page will be used are locally installed versions. If not, download and install the *NetGuard* software on each computer on which the HTML page will be used.

  4. **Import** the HTML page into the *NetGuard* views in which it will be used.

  5. **Test** that the navigation controls on the imported HTML page work as intended.

  6. **Enjoy** simple and intuitive *NetGuard* navigation, tailored to meet your organization's needs.

To log out of the *NetGuard*, simply click the *Log Out* button in the *NetGuard client*'s top bar:

Log Out button

Web and Realtime Feed Servers

Installation-dependent features: Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), the *Web Server* and the *Realtime Feed Server* are not available. See Installing the Software for more information about the installation differences.

NetDVR features two alternatives to using the *Image Server*/*NetGuard*/*NetGuard EVS* for providing remote access to the surveillance system: The *Web Server* and the *Realtime Feed Server*.

The *Web Server* and the *Realtime Feed Server* do not offer as advanced functionality as the *Image Server*/*NetGuard*/*NetGuard EVS*; neither at the server end, nor at the client end. However, if remote users are to access the surveillance system through very slow connections, such as 28.8 Kbps connections, using the *Web Server* and the *Realtime Feed Server* may be advisable.

The *Web Server* handles navigation and still image viewing, whereas the *Realtime Feed Server* handles all live and playback feeds.

Remote users connect to the *Web Server* and the *Realtime Feed Server* through a regular browser; no client software is required.

Both servers can be started from Windows' *Start* menu if they have not been added to the startup folder when NetDVR was installed.

By default, the *Web Server* uses port 81, and the *Realtime Feed Server* uses port 9513.

Note: Both servers must be started before they are active and remote users are able to connect to them. If remote users should be able to view live images, the *Monitor* application must be running as well.

- ## Web Server: Configuration

To configure the *Web Server*, open the *Web Server*'s *Settings* window the following way:

1. Open Windows' *Start* menu.
2. Click *All Programs*.
3. Select *NetDVR > Web Server*.

   The *Web Server* icon now appears in the notification area (system tray), at the far right of the Windows taskbar.

   Web Server icon
4. Click the *Web Server* icon.

   This will open the *NetDVR Web Server* window.

5. In the *NetDVR Web Server* window, click the *Settings* button.

This will open the *Settings* window, in which you configure the *Web Server*:

Settings window

The *Settings* window lets you configure the *Web Server*. The *Settings* window is divided into two sections: the *Web Server setup* section and the *User administration* section:

Web Server Setup

The *Settings* window's *Web Server setup* section contains the following fields:

Field	Description
HTTP port	Indicates the port used by the Web Server. Default is port 81. Field is editable only when the Web Server is stopped
Auto Start	The *Web Server* must be started before it is active and remote users are able to connect to it. The *Auto Start* check box lets you enable automatic start of the *Web Server*. With automatic start enabled, the *Web Server* will start automatically when you click the *Web Server* icon in the notification area at the far right of the Windows taskbar. *Web Server* icon The use of *Auto Start* is recommended. When automatic start is not enabled, you must start the *Web Server* manually by clicking the *Start server* button in the *NetDVR Web Server* window. You access the *NetDVR Web Server* window by clicking the *Web Server* icon in the notification area at the far right of the Windows taskbar.
Log Activity to File	Select check box to log *Web server* activity in a log file. The log file will be stored in the directory in which the NetDVR software is installed.
Days to log	Available only if *Log Activity to File* check box is selected. Lets you specify the number of days in which log files should be kept before they are deleted. Default is ten days. **Tip:** Read more about logging in About Logging.
Timeout for connections	Lets you specify a number of minutes within which the remote user must have been active (requested information from the *Web Server*) in order to keep the connection open. If the remote user has not been active within the specified time, the connection will be closed, and the remote user will have to log in again if more information is required from the *Web Server*. Default period is five minutes.
Realtime feed quality	**Note:** This setting specifically concerns the *RealtimeFeed Server*. Lets you specify the default image quality used by the *RealtimeFeed Server*: • ***Low*:** Low image quality. Recommended for slow connections, such as modem connections. • ***Medium***: Medium image quality. Recommended for connections of reasonable speed, such as ISDN connections. • ***High*:** High image quality. Recommended for fast connections, such as ADSL or LAN connections. Remote users will be able to manually override the *RealtimeFeed Server*'s default image quality.

User Administration

Accounts and access rights for remote users are configured in the *Settings* window's *User Administration* section. Unrestricted anonymous remote access is possible; however, if you want to restrict remote access, you must define user accounts, i.e. user names and passwords, for the remote users.

Defining User Accounts

To define user names and passwords for remote users, click the *User setup* button. This will open the *User administration* window, in which you define individual user names and their associated passwords.

To add a user, click the *User administration* window's *Add user...* button, specify the required user name and password, and click *OK*. This will add the user to the *User administration* window's list of users.

To remove a user from the *User administration* window's list of users, select the user in the list, and click the *Delete user* button.

Defining Access Rights

Three different types of access right are available:

- ***Allow anonymous access*:** Allows unrestricted access; users will not have to specify a user name or password to access.
- ***Access for predefined users only*:** Allows access only to users you have defined by clicking the *User setup* button. Those users must provide their user name and password when accessing, after which they will have access to all available cameras.
- ***Restrict user access by camera*:** Allows access only to users you have defined by clicking the *User setup* button. You are able to restrict those users' access to particular cameras and features as described in the following.

Restricting Defined Users' Access

When you select the option *Restrict user access by camera*, you are able to restrict defined users' access to particular cameras and features in the following way:

1. Click the *User Access* button.

   This will open the *Define Camera Access for individual users* window:

Define Camera Access for individual users window

2. In the *User* list, select the required user.
3. In the *Defined Cameras* list, select the name of each camera to which the user should have access.

   Tip: By pressing the CTRL or SHIFT buttons on your keyboard while selecting camera names in the *Defined Cameras* list, you are able to select several or all of the listed camera names in

one go.

4. Click the >> button to move the selected camera names to the *Viewable by selected user* list.

5. If the user in question should be able to play back recordings from the selected cameras, select the *Allow playback functionality via Web server* check box.

6. If the user in question should be able to generate AVI movie clips from recordings from the selected cameras, select the *Allow AVI creation via Web server* check box.

7. Repeat as required for other users.

Tip: For the remote user's perspective, also see Remote Access through Web and RealtimeFeed Servers.

Testing the Web Server Configuration

To test the *Web Server*, open an Internet Explorer browser (version 6.0 or later is required) on the computer running the NetDVR software, and go to the following address:

```
http://localhost:81
```

Note: For remote users to view live images, the *Realtime Feed Server* as well as the *Monitor* application must be running.

- ## Web Server: Administrator's Guide to Day-to-Day Operation

Once it has been configured, you are able to run the *Web Server*, and remote users will be able to connect to it for image navigation and still image viewing.

Starting the Web Server

The *Web Server* may already be running. When the *Web Server* is running, the *Web Server* icon appears in the notification area (system tray), at the far right of the Windows taskbar.

Web Server icon

If the icon is not present, you must start the *Web Server*. To start the *Web Server*, do the following:

1. Open Windows' *Start* menu.

2. *Select All Programs*.

3. Select *NetDVR* > *Web Server*.

   The *Web Server* icon now appears in the notification area (system tray), at the far right of the Windows taskbar.

   Web Server icon

4. Click the *Web Server* icon.

   This will open the *NetDVR Web Server* window.

   If *Auto Start* was selected when configuring the *Web Server*, the *Web Server* will automatically start, and remote users are able to connect to it.

   If *Auto Start* was not selected when configuring the *Web Server*, the *Web Server* must be started manually by clicking the *Start server* button.

5. *Web Server* and user activity can be monitored in the *NetDVR Web Server* window's *Log* section.

Stopping the Web Server

To stop the *Web Server*, click the *NetDVR Web Server* window's *Stop server* button. This will stop the *Web Server* without shutting it down. This means that you will quickly be able to start the *Web Server* again by clicking the *Start server* button.

Shutting Down the Web Server

To shut down the *Web Server*, click the *NetDVR Web Server* window's *Shut down...* button. This will shut down the *Web Server*, and you will have to access it from Window's *Start* menu in order to start it again.

When clicking the *Shut down...* button, you will be asked to confirm that you want to shut down the *Web Server*.

- ## RealtimeFeed Server: Configuration

The *Realtime Feed Server* does not require any configuration, apart from its default image quality, specified as part of the configuration of the *Web Server*.

You are, however, able to change the port number used by the *Realtime Feed Server* when communicating with the ActiveX Real Time Client (default is port 9513). To change the port number, do the following:

1. Make sure the *Realtime Feed Server* is started (see *Starting the RealtimeFeed Server* below).
2. Access the *Realtime Feed Server* window by clicking the *Realtime Feed Server* icon in the notification area at the far right of the Windows taskbar.
3. Stop the *Realtime Feed Server* by clicking the *Stop* button.
4. Change the port number in the *Server Port* field.
5. Locate the file *playbackfeed.html* in the *HTML* directory under the directory in which the NetDVR software is installed.
6. Edit the file *playbackfeed.html* by changing the port number in the line *RTFeed.port = 9513;* to the required port number.

- ## RealtimeFeed Server: Administrator's Guide to Day-to-Day Operation

Once you run the *Realtime Feed Server*, remote users will be able to connect to it for live image feeds.

Starting the Realtime Feed Server

The *Realtime Feed Server* may already be running. When the *Realtime Feed Server* is running, the *Realtime Feed Server* icon appears in the notification area (system tray), at the far right of the Windows taskbar.

Realtime Feed Server icon

If the icon is not present, you must start the *Realtime Feed Server*. To start the *Realtime Feed Server*, do the following:

1. Open Windows' *Start* menu.
2. *Select All Programs*.
3. Select *NetDVR > Realtime Feed Server*.

   The *RealtimeFeed Server* icon now appears in the notification area, at the far right of the Windows taskbar.

   RealtimeFeed Server icon

4. Click the *Realtime Feed Server* icon.

   This will open the *NetDVRRealtime Feed Server* window.

   If the *Autostart* check box is selected, the *Realtime Feed Server* will automatically start.

   If the *Autostart* check box is not selected, the *Realtime Feed Server* must be started manually by clicking the *Start* button.

5. Connecting users' IP addresses and progress can be viewed in the *NetDVRRealtime Feed Server* window's *Connections* section.

Stopping the Realtime Feed Server

To stop the *Realtime Feed Server*, click the *NetDVRRealtime Feed Server* window's *Stop* button. This will stop the *Realtime Feed Server* without shutting it down. This means that you will quickly be able to start the *Realtime Feed Server* again by clicking the *Start* button.

Shutting Down the Realtime Feed Server

To shut down the *Realtime Feed Server*, click the *NetDVRRealtime Feed Server* window's *Shut down...* button. This will shut down the *Realtime Feed Server*, and you will have to access it from Window's *Start* menu in order to start it again.

When clicking the *Shut down...* button, you will be asked to confirm that you want to shut down the *Realtime Feed Server*.

Installation-dependent features: Available only when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the *Recording Server* service), the *Web Server* and the *Realtime Feed Server* are not available. See Installing the Software for more information about the installation differences.

Provided the *Web Server* and the *Realtime Feed Server* are running on the NetDVR surveillance system, remote users are able to connect to the surveillance system through a regular Microsoft Internet Explorer browser.

When accessing the surveillance system this way, remote users will—their access rights permitting—be able to view live images from cameras on the surveillance system, browse recorded images as well as generate and export AVI movie clips of recorded events.

Remote users should be aware that a more advanced and feature-rich way of accessing the surveillance system may be available: Ask your NetDVR system administrator if it is possible to connect with a *NetGuard* or *NetGuard EVS*.

- ## Logging in to the Surveillance System

Note: To log in to the surveillance system, you must connect to a particular IP address and port number; ask your NetDVR system administrator if in doubt about which IP address and port number to use.

Log in to the surveillance system the following way:

1. Open a Microsoft™ Internet Explorer browser.

   Microsoft™ Internet Explorer Version 6.0 or later is required.

   Tip: To find out which Microsoft™ Internet Explorer version you are using, select *About Internet Explorer* in your browser's *Help* menu.

2. In the browser's *Address* field, type `http://` followed by the IP address or hostname of the NetDVR server you want to connect to.

   You must specify the server's port number after the IP address. Use a colon to separate the IP address and the port number.

   Example: If the IP address of the server is 123.123.123.123 and its port number is 81, type `http://123.123.123.123:81`

3. Click the browser's *Go* button—or simply press the ENTER key on your keyboard—to go to the IP address you have specified.

   When the connection to the *Web Server* has been successfully established, a login page will appear:

4. Access to the *Web Server* is likely to be restricted. When this is the case, specify your user name and password.

5. If you want to be able to view live images, or to be able to browse recorded images, select the *ActiveX support* check box.

6. Click the *Login* button.

7. A web page with a menu for selecting cameras, navigating images, etc. will appear:

Example of remote viewing of images from a surveillance camera

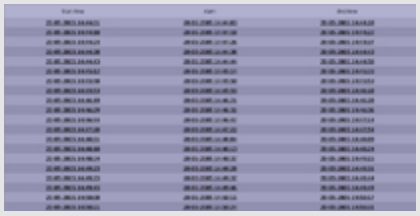
The menu is divide into three sections: *Single View* (light yellow background), *Quad View* (purple background) and *Help* (green background). The features available in each menu section are described in the following.

- ## Single View

The *Single View* menu section is used for handling images from a single camera at a time. The following features are available in the *Single View* menu section:

Feature	Description
Select Camera	Lets you select a camera. Selection is based either on a simple list of cameras or on a graphic representation of the NetDVR surveillance system's *Monitor* application. When the graphic representation is used, available cameras are indicated by green squares: To select a camera, click a green square. The selected square will be highlighted, and a still image from the selected camera will appear next to the menu.

	Blue squares may appear. Such blue squares simply indicate that no camera is available in the particular section of the NetDVR surveillance system's *Monitor* application.
Archives	Non-recent images are typically saved in so-called archives. The *Archives* link lets you select and view archived images from the selected camera, provided such archives are available.
Image	Lets you browse recorded images from the recent database of the selected camera, image by image. Clicking the left arrow will take you to the image preceding the currently viewed image, unless the currently viewed image is the first stored image. Clicking the right arrow will take you to the image following the currently viewed image, unless the currently viewed image is the last stored image. **Tip:** To view non-recent images from the selected camera, try the *Archives* feature.
Motion	Lets you browse images from the recent database of the selected camera, in which motion has been detected. Clicking the left arrow will take you to the previous image in which motion was detected, unless the currently viewed image is the first stored image. Clicking the right arrow will take you to the next image in which motion was detected, unless the currently viewed image is the last stored image. **Tip:** To view non-recent images from the selected camera, try the *Archives* feature.
Sequence	Lets you browse sequences from the recent database of the selected camera. Clicking the left arrow will take you to the previous sequence. If motion was detected within the sequence, you will be taken to the first image in which motion was detected within the sequence. If no motion was detected within the sequence, you will be taken to the first image in the sequence. Clicking the right arrow will take you to the next sequence. If motion was detected within the sequence, you will be taken to the first image in which motion was detected within the sequence. If no motion was detected within the sequence, you will be taken to the first image in the sequence. **Tip:** To view non-recent images from the selected camera, try the *Archives* feature.
End	Lets you quickly jump to the oldest or newest image from the recent database of the selected camera. Clicking the left arrow will take you to the oldest image in the recent database of the selected camera. Clicking the right arrow will take you to the newest image in the recent database of the selected camera **Tip:** To view non-recent images from the selected camera, try the *Archives* feature.
Overview	Lets you browse sequences from the recent database of the selected camera, in which motion has been detected. *Overview* browsing is based on thumbnail image representations

	of the sequences. Clicking the left arrow provides you with an overview of the previous four sequences in which motion was detected, with information about each sequence. You are able to jump to a sequence by clicking the thumbnail image representing it. Example of overview Likewise, clicking the right button provides you with an overview of the next four sequences in which motion was detected, with information about each sequence. You are able to jump to a sequence by clicking the thumbnail image representing it. Clicking the *Overview* link lets you browse the four-sequence overviews. For each click, you are taken forward in time.
Alarms	Lets you browse sequences from the recent database of the selected camera, in which motion has been detected. *Alarms* browsing is based on a list of the sequences. Clicking the left arrow lets you browse back in time in a list of sequences in which motion was detected. The list displays information about start time, first motion detection (alarm) time and end time for each sequence. By clicking the list's links, you are able to jump to the images matching each sequence's start time, first motion detection (alarm) time and end time.  Example of *Alarms*list Likewise, clicking the right arrow lets you browse forward in time in a list of sequences in which motion was detected. The list displays information about start time, first motion detection (alarm) time and end time for each sequence. By clicking the list's links, you are able to jump to the images matching each sequence's start time, first motion detection (alarm) time and end time. Clicking the *Overview* link lets you quickly jump to a list of the newest sequences in which motion was detected.
Live	Switches to live view for the selected camera. Live view lets you view live images from the selected camera. When viewing live images, you are able to select between low, medium and high image quality. The *pause* button *start* buttons in the live view lets you pause and start the live feed as required.

	If configured for the selected camera, output buttons may also be available. Output buttons are used for triggering external output, for example for switching on lights, sounding a siren, etc. Ask your NetDVR system administrator if in doubt. For PTZ (Pan/Tilt/Zoom) cameras, PTZ navigation buttons will also become available in the live view, provided you have the user rights required to control PTZ cameras. To return to viewing still images from the selected camera, click the *Still* link in the live view.
Playback	**Note:** Certain user rights may be required in order to use this feature. Switches to playback view for the selected camera. Playback view lets you play back recorded images from the selected camera, based on a date and time you specify in the playback view. The *pause* and *start* buttons in the playback view lets you pause and start the live feed as required. To return to viewing still images from the selected camera, click the *Still* link in the playback view.
Build AVI file	**Note:** Certain user rights may be required in order to use this feature. Starts a wizard, with which you are able to create and export an AVI movie clip of selected recordings. Such movie clips may, for example, be used as evidence.
Print	Lets you print the currently viewed image. A time stamp will automatically be included with the print. You are furthermore able to include your name and a comment, if required.
Go To	Lets you jump straight to images from a date and time specified in the field above the *Go To* button.

- ## Quad View

The *Quad View* menu section is used for viewing live images from up to four cameras at a time.

Example of quad view

You are able to create and save up to ten different quad views. To save a quad view, click the *Save Setup* link at the top of the quad view in question.

Tip: You are able to give each saved quad view a name of your choice: Type the required name in the *Quad* field at the top of the quad view in question, then click the *Save Setup* link.

Logging

Various types of log files can be generated by NetDVR:

- **Log File Types, Locations and Names**

  NetDVR is able to generate the following types of log files:

  ## Administrator Log Files

  These files log activity in the *Administrator*. A log file is created for each day the *Administrator* is used.

  By default placed in the folder containing the NetDVR software. Note, however, that the location as well as the number of days to log can be changed in the *General Settings* window's *Logfile Settings* section.

  Administrator log files are named according to the structure AdminYYYYMMDD.log, e.g. *Admin20051231.log*.

  ## Monitor Application Log Files

  These files log activity in the recording server when it runs as the *Monitor* application. A log file is created for each day the *Monitor* application is used.

  Installation-dependent: These log files are only generated when the recording server has been installed as an *application* (the *Monitor* application). If the recording server has been installed as a *service* (the*Recording Server* service), these log files are not generated. See Installing the Software for more information about the installation differences.

  By default placed in the folder containing the NetDVR software. Note, however, that the location as well as the number of days to log can be changed in the *General Settings* window's *Logfile Settings* section.

  Monitor log files are named according to the structure MonitorYYYYMMDD.log, e.g. *Monitor20051231.log*.

  ## Recording Server Service Log Files

  These files log activity in the recording server when it runs as the *Recording Server* service. A log file is created for each day the service is used.

  Installation-dependent: These log files are only generated when the recording server has been installed as a *service* (the*Recording Server* service). If the recording server has been installed as an *application* (the *Monitor* application), these log files are not generated. See Installing the Software for more information about the installation differences.

  By default placed in the folder containing the NetDVR software. Note, however, that the location as well as the number of days to log can be changed in the *General Settings* window's *Logfile Settings* section.

  Recording Server service log files are named according to the structure RecordingServerYYYYMMDD.log, e.g. *RecordingServer20051231.log*.

  ## Event Log Files

  These files log information about registered events (read more about events in About Input, Events & Output ...). A log file is created for each day on which events have occurred.

  By default placed in the folder containing the NetDVR software. Note, however, that the location as well as the number of days to log can be changed in the *General Settings* window's *Event Recording Settings* section.

  Event log files should be viewed using the *Monitor application*'s *Viewer* or the *NetGuard EVS*:

- ***Viewer:*** Select the *Viewer*'s Alarm Overview control panel, then click the *Events* button to view the events log.

- ***NetGuard EVS*:** In the *Browse* tab's *Alerts* section, select the required event, then click the *Get List* button to see when the event in question was detected.

Image Server Log Files

These files log activity on the *Image Server* service. A log file is created for each day the *Image Server* is used.

By default placed in the folder containing the NetDVR software.

Image Server log files are named according to the structure ISLog_YYYYMMDD.log, e.g. *ISLog_20051231.log*.

Image Server Audit Log Files

These files log *NetGuard NetGuard*and *NetGuard EVS* user activity, if audit logging is enabled in the *Image Server Administrator*. A log file is created for each day with remote user activity.

By default placed in a subfolder named *ISAuditLog* under the folder containing the NetDVR software.

Image Server audit log files are named according to the structure is_auditYYYMMDD.log, e.g. *is_audit20053112.log*.

Export Log Files

These files log activity regarding database export from the *Monitor* application's *Viewer*. A log file is created for each day on which export was performed.

By default, exported databases as well as the export log file are placed in an *Exported Images* folder on the desktop of the computer on which the export was performed. Note, however, that the export location may be changed as part of the export process.

Export log files are named according to the structure ExportYYYMMDD.log, e.g. *Export20053112.log*. Note, however, that database exports may be encrypted and/or compressed, in which case export log files are also encrypted/compressed and further file extensions, such as *.mzi* or *.men* may appear in export log file names.

Web Server Log Files

These files log activity on the *Web Server*, if logging is enabled in the *NetDVRHTTP Server* window.

By default placed in the folder containing the NetDVR software.

Web Server log files are named according to the structure www_YYYYMMDD.log, e.g. *www_20051231.log*.

- ### Log File Structures

Most log files generated by NetDVR use a shared structure complying with the W3C Extended Log File Format:

Each log file consists of a header and a number of log lines:

- The *header* outlines the information contained in the log lines.

- The *log lines* consist of two main parts: the log information itself and an encrypted part. The encrypted part makes it possible—through decryption and comparison—to assert that a log file has not been tampered with.

- ### Integrity Checks and Possible Error Messages

  Log files are subjected to an integrity check once every 24 hours. The result of the integrity check is automatically written to a file named according to the structure LogCheck_YYYYMMDD.log, e.g. LogCheck_20061231.log.

  The log check file is by default placed in the folder containing the NetDVR software.

  Any inconsistencies will be reported in the form of error messages written in the log check file. The following table lists possible error messages (other, non-error, messages may also appear in the log check file):

Error Message	Description
"Log integrity information was not found. Log integrity can't be guaranteed."	The log file could not be checked for integrity.
"Log information does not match integrity information. Log integrity can't be guaranteed."	The log file exists, but does not contain the expected information. Thus, log integrity cannot be guaranteed.
"[Log file name] not found."	The log file was not present.
"[Log file name] is empty."	The log file was present, but empty.
"Last line changed/removed in [log file name]."	The last line of the log file did not match validation criteria.
"Encrypted data missing in [log file name] near line [#]."	The encrypted part of the log line in question was not present.
"Inconsistency found in [log file name] near line [#]."	The log line does not match the encrypted part.
"Inconsistency found in [log file name] at beginning of log file."	The log file header is not correct. This situation is most likely to occur if a user has attempted to delete the beginning of a log file.